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MISCELLANIES

STORIES AND ESSAYS

VOL. II

MISCELLANIES

STORIES AND ESSAYS

BY

JOHN HOLLINGSHEAD

IN THREE VOLUMES

VOL. II

LONDON:

TINSLEY BROTHERS, 8, CATHERINE ST., STRAND.

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A LITERARY ADVISER.

I WAS once a not undistinguished member of the Soso Theatre. I flatter myself that I not only had the ability to pay for the parts that I performed, but the ability to perform the parts that I paid for—at least Mr Elliston Potts, the manager of that nursery of dramatic genius, thought so. 'My dear sir,' said he, 'your Hamlet the other night forcibly reminded me of the elder Kean. I have made out your little bill for the month, and, in consideration of your unquestionable talent, and your taking a round of characters, I have put them in to you at half our usual price:—

MR FUDGEPLOT,

Dr. TO ELLISTON POTTS.

		£	s.	d.
4 Tony Lumpkins ..	at 5*s.* 6*d.*	1	2	0
1 Hamlet	10*s.* 0*d.*	0	10	0
		£1	12	0

'Ah, sir,' he said, as he receipted the bill, 'it is a matter of constant regret with the profession, that Shakespeare did not write some good farces. We are bound hand and foot to these Dramatic Authors, whose terms are far from reasonable. Shakespeare has done a good deal for the stage, but he was guilty of a great oversight there.'

It was this conversation with Mr Potts, coupled with the desire

that I felt to distinguish myself in the eyes of my theatrical companions, that induced me to turn my thoughts to dramatic composition. I resolved to write a farce. I began my task. Many days and nights passed, without much progress. I found myself harassed by doubts and beset with difficulties. At one time I thought I had got too many women in the piece: I struck out four, and had consequently to re-arrange the thread of my story. At another time I took objection to several of the male characters. I turned one young man into an old man, and I transformed two old men into young ones. I was fastidious in the choice of names, and some of my characters went through as many appellative changes as a swell mobsman. I had also great difficulty in fixing the relationship of the several parties. I was much troubled in my mind as to whether I should make an old lady the mother of a son and daughter, or the aunt of a nephew and niece;—I walked from London to Greenwich ruminating this point, and I walked back again, without having decided it. I passed a restless night, and about half-past three in the morning I got up and lit a candle, having determined to make her the mother. The resolution involved the striking out of some expressions that would have sounded highly undutiful from a child to a parent; I struck them out, and went back to bed. My greatest trouble was preserving the characteristics of my characters: I found the serious lady, at times, inclined to be funny; and the gentleman, whose place it was to be perpetually droll, occasionally lapsing into a profound melancholy. I have seen Mr Ducrow at the circus driving fourteen horses abreast. I have seen one or two unruly beasts throw the whole team out of order. I was like Mr Ducrow: my characters were like the horses. I began to alter in my appearance. Some of my friends thought I was going into a consumption. I received many pots of jelly and marmalade from unknown hands, and (the recollection makes me sick even now!) four quarts of cod-liver oil from an aunt in the country, with a strict injunction that I should take half a pint every morning before breakfast! I could not sleep at night; I lost my appetite; my hair turned gray. This state of things could not go on for ever. I must have some professional advice—not medical, but theatrical; and I resolved at last, although reluctantly, to call and consult a person from whom I had once taken six lessons in elocution. The result of my interview with this gentleman was, that I got the address of an individual who, I was told, could materially assist me 'in any walk of literature or the drama.' It was a dirty, greasy card, drawn up as follows:—

MR GLOWWORM,

AUTHOR, ACTOR, AND POET:

SHORTS' GARDENS, DRURY LANE.

GENTLEMEN'S OWN MATERIALS MADE UP.

ACROSTICS, SONNETS, AND IMPROMPTUS, ON THE SHORTEST NOTICE, AND MOST REASONABLE TERMS.

I sent a note to Mr Glowworm, asking him to wait upon me at my rooms at eight o'clock in the evening. At the appointed time he came. He was a short, stout man, about fifty years of age; closely shaven, and blue about the cheeks and chin. He was dressed in a thread-bare black coat and trousers, with a faded purple velvet waistcoat, buttoned up to the neck, round which he wore a black satin stock, rather worn at the edges. His face was coarse, and inclined to be fat; and his mouth was rather drawn down on one side, as if from a habit of making grimaces. This was the strange guide who was to take my trembling hand, and to direct my tottering steps in the intricate, and—by me—untrodden paths of dramatic literature.

'My dear sir,' he began, when we had seated ourselves, 'you need feel under no restraint. Everything with me is held in the strictest confidence. Do you require a new work furnished, a rough sketch filled up, or an old work remodelled?'

'I merely wish,' I replied, 'to have a little advice and assistance upon a literary matter, that I fear I have entered upon without a thorough knowledge of its technical difficulties.'

'Experience,' he returned, 'is only to be gained in time; and you are comparatively young. I remember the period when I used to sit for hours over a sheet of paper, and could not hammer out a line. Now, nothing comes amiss to me.'

'Indeed!' I replied, admiringly; 'that must be very gratifying.'

'I don't care,' he continued, 'for the empty gratification of having my name blazoned in magazines and title-pages. I work quietly, like a mole, under-ground, my province not being so much to originate as to improve. If some old stockbroker, in his Clapton retirement, cannot rest easy until he has delivered himself of a pamphlet on the Bank Charter, the crude production comes to me, and—I prepare it

for the press. If a lady with literary aspirations thinks she would like to see herself lying on a drawing-room table as the authoress of 'Ida, and other Poems,' a manuscript is forwarded to me, and—I prepare it for the press. If a young gentleman, whose education has been neglected, wishes to appear as a classical scholar, he sends his essay to me, and I fill in quotations from Horace and Juvenal at discretion. If a new panorama is opened, I have something to do with the descriptive lecture. If Mr Tenwigs wishes to go the round of the 'Literary Institutions' with an old comic entertainment, it is my task to bring it up to the spirit of the present day; and if the same industrious gentleman should purchase a second-hand Orrery at a broker's, it is my duty to furnish him with all the latest discoveries in astronomy, that his lecture during Passion Week at one of the theatres may not be marked by any glaring errors in fact, or blemishes in style. So you observe, sir, that my experience is somewhat wide; may I ask in what particular kind of literature I can be of service to you?'

'My production is a farce,' I replied; 'and, although not altogether unacquainted with the stage, I find a little difficulty with the plot, and I have thought it desirable to seek the advice of an experienced person like yourself.'

'Oh! indeed,' he rejoined, 'a worshipper at the shrine of Thalia! Well, sir, you are quite right; the stage is sadly in want of assistance from literary men; fresh blood, sir, fresh blood is necessary to her very existence. Allow me to run my eye over your manuscript: I soon form a judgment.'

I handed him the composition with some degree of nervous timidity; and I waited impatiently for the verdict of a man of such wide experience. I was not long kept in suspense.

'My dear sir,' said he, with a glow upon his countenance, 'you have *not* mistaken your vocation. During a long and varied career, it has often been my painful duty to check the impulses of a young and ardent nature; to turn a mind from the calm contemplation of the primrose paths of poesy, to the stern realities of every-day life. But in your case, I can lay my hand upon my heart without hesitation, and say, Go on, sir,—go on in the course that you have adopted: success must attend your efforts.'

I was scarcely prepared for such a gratifying compliment. I felt as if I had been in a dream. The doubts that had beset me in the execution of my work seemed to disappear like the illusions of hypo-

chondria. When I had sufficiently recovered myself, I ventured to draw his attention to one or two manifest omissions in the work.

'Oh, ah! exactly,' he rejoined, turning to the parts indicated,—'mere trifles, sir, mere trifles,—not the result of a lack of genius, but of a comparative unfamiliarity with the mechanical exigencies of the stage.'

'I am very proud to hear you say so,' I replied; 'but if you will turn to page 18, I think you will find that the interest sensibly flags at that point.'

'Then it will be necessary,' he replied, 'to stimulate the attention of the audience by some striking incident. My dear sir, that you may leave to me; it is peculiarly my province. I shall smash a tray full of crockery at that juncture, an incident that is indispensable to all successful farces—in some cases it must be repeated twice. I shall compel one of the characters to appear in a tattered coat and a battered hat. I shall make the chamber-maid lock somebody in a china closet. I shall——'

'But,' I interrupted, 'you will find that my plot will not admit of these incidents.'

'Make yourself perfectly easy upon that score. They *must* be introduced, and you shall in due time admire the art with which I will introduce them. I must revise the names: they are too refined. For instance, "Mr Banbury" is too respectable and quiet without the "tart." "Mr Banburytart" is a farce name, that would carry a piece through without anything else.'

'I am quite content to leave everything to your judgment,' I answered. 'Which theatre do you think the piece is best suited for?'

'That is a question requiring great consideration,' he returned. 'There is but one man that could do full justice to your principal character, and he is unfortunately lost to us at present. Do you know Spasms—little Spasms of the Shambles Theatre, Whitechapel?'

'No, I do not.'

'Wonderful comedian, sir, especially in nervous parts; but, as I said before, he is lost to us for a time.'

'Is he ill?' I inquired.

'No,' he replied, 'he is in the Queen's Bench. It will not do to send it to Smugston, because he contracts by the year with an eminent Paris firm, and his actors have no voice in the matter. Millefleur won't do because he understands French, and does his own translating. If you send it to Spangles, he will write and tell you that he

has got a five years' stock on hand. Toddler might take it, but then he would only use it as a setting for his eternal comic songs. Little Waddle will not look at it unless it has a part for his wife. Gaggler is the most likely man to take it up, if he has not grown too lazy to learn any new parts. Leave it entirely to me, and I will undertake to see it properly introduced to his manager.'

I was, of course, too happy to transfer the business into such competent hands. I paid him a very liberal sum, on account, and shortly afterwards he took his leave.

Mr Glowworm called in occasionally to report progress, which was satisfactory, and also to draw little sums of money,—which was not quite so satisfactory. His visits became less frequent: they ceased. I waited some weeks, and then I wrote to him. The letter was returned, marked, 'Gone away.' It now became evident that I must begin to move in the matter myself, and very reluctantly I prepared to do so. My first impulse was to write to the theatre, and then I thought it would be much better to obtain an interview with the manager himself. I found his address at Brompton—I had some slight recollection of his face from having seen him on the stage. I thought my best plan would be to watch him out of his house when he came down to rehearsals in the morning, and introduce the subject carelessly to him in the omnibus. Acting upon this idea, I lounged about the neighbourhood on several occasions without success. At last, one morning about twelve, a staid, business-looking man issued from the house. He hailed an omnibus, and we both entered it together. He certainly did not bear much resemblance to the manager, but I thought my memory might have deceived me. I tried in every way to engage his attention, but he was so much engrossed with some memoranda in a pocket-book that I could not succeed. He did not stop at the theatre, but went on to the City. I followed him to an office near Lombard Street. I asked a ticket-porter, standing at the door of the house, if he knew the gentleman who had just entered; his answer was that he belonged to the celebrated firm of Overreach and Co., the money-lenders. Many years afterwards I learned that this firm held a mortgage upon the theatre. No doubt the staid gentleman had been up to arrange some business connected with it.

This was a very narrow escape from making a mistake. I went home ruminating upon it, and resolved to go boldly to the theatre that night, and seek an interview with the manager in his room. I ıd by the bills that he was to perform in the first piece, and I

therefore judged that if I reached the theatre about half-past six, I should catch him dressing for his part.

At the time I had settled, I arrived at the stage door. It was situated in a dirty, gloomy back street, and seemed to be the entrance to an old house, whose broken windows were patched with pieces of scenery and theatrical posters. Just inside the door sat a porter in a kind of watch-box. I explained to him that it was absolutely necessary that I should see the manager without delay, upon business of the highest importance;—I was surprised that I found determination enough to say this, but I had screwed my nerves up to a certain pitch, and I resolved to carry my point. The porter upon this consulted for some minutes with a woman in the passage, she went up the creaking staircase, stayed some minutes, came down again, and told me she would conduct me to the manager's room. I followed her up a number of very worn and dirty stairs, lighted here and there by a dim jet of gas projecting from the black and crumbling wall. At last we stopped at a half-open door, at which my guide tapped.

'You cannot come in,' exclaimed an excited voice within the room, 'I'm in a state of nudity!'

My companion glided away, and I was left alone with the manager. 'My name is Fudgeplot,' I exclaimed mildly, still outside the door.

'I am dressing for an arduous part,' returned the manager, still more excited, 'I have to be on the stage in ten minutes. If you were Shakespeare himself, sir! I could not speak to you at this moment!'

'I beg pardon if I have intruded, but——'

'Stay,' rapidly interposed the manager. 'What's your business? Take your place behind the screen. I can give you one minute.'

I took my place as he indicated, behind a screen that stood within the door, hiding the interior of the room. I was thus only separated from the great manager by this frail partition. A strong-minded, resolute man, under such circumstances, would have compelled the acceptance of any piece upon any terms,—I, on the contrary, was beginning to be painfully sensible that I had chosen an unfortunate time for my visit. 'I've called,' I meekly replied, 'about a farce sent to you on my behalf by Mr Glowworm?'

'Mr Glowworm? I don't know such a person. What title has it?'

'Well, I believe he decided to call it "Veal Cutlets," because——'

'What name? pronounce slowly and distinctly.'

'"Veal—Cutlets!"'

'I never received any farce with such a title. I don't know Mr Glowworm; I don't know anything about "Veal Cutlets!"'

'But, you don't mean——'

'Now, sir, I hear that the overture is finished—I have not a minute to spare; will you take a decided answer?'

I could say no more. I slunk from the theatre, and returned to my lodgings in no very cheerful mood. The faithless Glowworm had deceived me.

For many months I remained in ignorance of the fate of my farce. At length circumstances came to my knowledge that led me to believe that it had been performed at one of the obscure minor theatres—probably at the 'Shambles Theatre, Whitechapel,' with 'little Spasms' fresh from the Bench in the principal part, and before an audience of butchers, drunken sailors, and Jew clothesmen! I received the following notice from the Insolvent Court:—

'Whereas the Petition and Schedule of Octavius Glowworm, formerly of 8, Shorts' Gardens, Drury Lane, Author and Literary Adviser, Secretary and Managing Director of the London Melo-Dramatic Company (Limited); then of 19, Broker's Alley, Gray's-Inn Lane, Proprietor of the Samaritan Loan and Discount Office; then of 10, Crane Square, Tower Hill, first engaged in promoting, and afterwards as Chairman of the Isle of Dogs Land and Building Association; then of 81, St Spankus Terrace, New Road, trading under the title of Glowworm & Co., as proprietors of the Anti-Blackbeetle Syrup, and Auditor of the Society for the Extermination of all kinds of Vermin; then of the Shambles Theatre, Whitechapel, lessee and actor; then of Brickfield Lodge, Holloway; then of Carcass Square, Bayswater; and now of Cabbage Court, Covent Garden, Characteristic Vocalist at the Common Sewers Concert Room, and during all the time occasionally writing and revising various literary works, and, for a short time, while at Brickfield Lodge, delivering lectures upon the Currency, at the Polyclaptrap Institution, London;

'An Insolvent Debtor; have been filed in the Court, etc., and any Creditor may appear,' etc.

As I had not been honoured with a call before the curtain, I did not care to appear before the Commissioner. For any opposition of mine Octavius Glowworm got through the Court, although he had had the effrontery to insert my name in his schedule as a creditor for fifteen pounds, cash lent, and ten pounds for the purchase-money of an incomplete farce, entitled 'Veal Cutlets!' *

* Reprinted from the *Train* Magazine.

AUNT DOBSON.

A CONFESSION OF JUVENILE DEPRAVITY.

I SUPPOSE I ought to have had a great respect for Aunt Dobson because she was my aunt, but I cannot honestly say that I ever had. I think there must be some huge mistake at the bottom of that notion about the superior claims of your own flesh and blood. I am afraid I am a very ill-disciplined young man, for I am compelled to admit that I felt, while a boy at least, quite as much affection for the old woman who used to sell me baked apples at a street stall near my father's house, as I felt for my own aunt—my mother's own sister.

Perhaps the confession which I am about to make with regard to my behaviour to my Aunt Dobson, may not be altogether without its moral. There are so many conflicting doctrines of education that I will not venture to say whether the disciples of Rousseau or the believers in Mrs Trimmer are in the right. It is no doubt a very good thing that a child should be allowed in some measure to develop his natural bent; and it is no doubt equally good that he should be trained up in the way he should go; but sometimes it has struck me that, as there is such a thing as too much liberty, so it is just possible that there may be such a thing as too much restraint. Now I am a little older, I have begun to suspect that we grown people have hardly sufficient sympathy with young folk's buoyancy, and that we may now and then be more attentive to repressing something which is a nuisance to ourselves, than to carrying out a wise system of culture; but of this my reader shall judge from my story.

I was an only child, and as such, perhaps, deserved to be a little spoiled; but my aunt thought otherwise. She had the severest notions about the rearing of children, and she rigidly carried them out in my particular instance. My mother was always very weak and sickly, and my aunt was, therefore, left to do as she liked without the slightest shadow of opposition. I was pumped upon with cold water at six o'clock in the morning, both winter and summer; at seven years of age I was worried almost to madness with small-tooth combs and wiry hair-brushes; and I was physicked according to some periodical system, without any reference to my bodily condition.

I was never permitted to go to a theatre, and I was seventeen

before I had seen a pantomime. I was not allowed to play in the streets, for fear of catching the ringworm and a taste for low company; and when I was turned with hoop or shuttlecock into the garden as a substitute, I was made to respect the flower-beds, under threats of various penalties. When I broke a window, which of course I occasionally did, as no child can exist without doing so, I was made to pay every farthing of the glazier's bill out of my slender pocket-money. I was fed upon the coarsest food upon principle, and not from necessity, and I was supposed never to be troubled with an appetite, except at the allotted hours for breakfast, dinner, and supper.

A number of small tyrannies were practised upon me which I thought unbearable then, and which I now think injudicious, although I have arrived at years of discretion. I was in perpetual conflict with one who made no attempts to enlist my sympathy, and as I was not strong enough to resist, I was tempted to defend myself with falsehoods. I should like to see the frank, open-hearted, truth-loving boy, who was raised under the management of such an aunt as mine was.

We had two female servants—a cook and housemaid—and the first, being old and crabbed, took the part of my aunt; while the second, who was young and good-tempered, became my friend and confidant. In exchange for various kindnesses which this housemaid extended to me, I wrote her love-letters to her sweetheart. This sweetheart was sometimes a sailor in a ship lying off Jamaica, and sometimes a soldier, at certain barracks in Ireland.

I may have been a rather troublesome boy, as most boys will be who are seven or eight years of age, and tolerably strong and healthy; but there was never any occasion for such repeated complaints of my conduct as were made by the old crabbed cook to my listening managing relative. I never attempted to set the kitchen chimney on fire by upsetting a frying-pan; I never put a piece of soap in my aunt's luncheon broth; I never got intoxicated with the table-beer (my aunt always bought it, and it was not strong enough to touch an infant's head), or left the tap of the barrel running. I never sold off a lot of wine-bottles without inquiring whether they were empty or full, and without accounting for the money; I never made away with a bonnet of my aunt's that was not half worn out, nor was I guilty of a hundred other charges that were put upon my young shoulders. I will answer for my own crimes, but not for those of which the old crabbed cook was undoubtedly guilty.

I certainly did place a large flat-iron in my aunt's bed, so that

when her feet came against its cold surface at night, she shrieked out as if a crocodile had bitten her. I admit that I put walnut-shells on the cat's feet, and turned the animal loose in her room at the particular moment when my aunt had retired for her afternoon's nap. I confess that I once drew a picture on the top crust of a pie that was intended for her dinner when she was entertaining a particular friend; and I wrote outside, with the same soft black-lead pencil, 'This is old Aunt Dobson.'

'Who is she, I should like to know?' said the good-tempered housemaid, who sympathized with me after a beating. 'She shouldn't strike any child of mine, if I was its mother; and I only wonder that missus puts up with it.'

'The child as can draw pictures and write outside a pie,' said the old crabbed cook, 'will come to no good, as sure as my name's Hannah.'

My aunt used to take me to church, where we had a family pew, and where I am sorry to confess that I did nothing but make signs to another boy, who used to sit up in the gallery. I never liked to go with my aunt, because she made me sit so stiff, and because she would not let me loiter among the tombstones, when we walked through the churchyard after the service. The less I liked to go with her the more she liked to take me; and I was only relieved at last from her guidance by a hole in my pocket and a penn'orth of periwinkles.

As I had put on the trousers I wore on Saturday, I forgot all about the things I had smuggled away in them, and just at the commencement of the sermon the periwinkles rolled on to the floor of our pew, much to the horror and disgust of my aunt and the surrounding congregation.

I never felt so delighted in my life as I did when I heard that there was a prospect of my aunt leaving us. She had a little household property in a popular watering-place, and as the last tenant had turned out badly, she thought she had better go down and occupy her own house. I never believed she would really go, no more did the good-tempered housemaid, but one morning we were thrown into raptures by seeing unmistakable signs of her departure. While the old crabbed cook was fetching and bargaining with a cabman, I helped the good-tempered housemaid to bring down the boxes with a very good will, and was not hypocrite enough to affect any sorrow at my aunt's removal. She left some long and anxious instructions with my mother concerning me, and she gave me twopence, as a parting gift, upon the door-step.

The house was like a paradise to me after she had left, and the days passed like hours. They passed so quickly, indeed, that I was a year older without being aware of it, and my mother promised me a treat on the arrival of my birthday. My birthday arrived, and I found that the treat in store for me was a visit to my aunt.

'You want sea-bathing, my dear,' said my mother, when I strongly objected to go; 'and besides, you ought to try and please your aunt, who has always been so kind to you.'

I found out afterwards that my mother looked upon me as likely to be my aunt's heir, if I behaved with anything like prudence and decency.

Never did convict go more unwillingly to be hanged, than I did to the train which conveyed me to that popular watering-place. The old crabbed cook went with me in the cab to see me off, and she bought me nothing to comfort me on the journey, except an ounce of nasty cough lozenges. She must have seen the quart of green-gages which the housemaid—bless her!—had stuffed in my portmanteau.

When I arrived at the station of the popular watering-place, after many hours' travelling, the first thing I saw was my aunt standing on the platform to receive me.

'Bless me, Edgar!' she said, in astonishment, as she embraced me very warmly, 'how you have grown! You're quite a young gentleman.'

I had not been very conscious of much alteration in my stature during the twelvemonth my aunt had been away, but I did not venture to contradict her. I was too glad to find her in so amiable a temper, to do or say anything that was likely to disturb her.

My aunt's house was a very imposing building, in the principal part of the town, removed from the noise and vulgarity of the beach, but yet having a view of the sea. She only let a small portion of this house, and this only to very select lodgers, because (so she said) the place was too large for her own occupation. The drawing-room floor, at the time when I arrived, was in the temporary possession of a retired naval officer—a post-captain—about sixty.

My aunt never lost an opportunity of impressing me with a notion that I had prematurely arrived at an age of discretion. She always conveyed this impression in her speech, although her actions contradicted it. She 'accepted my protection'—as she called it—when we visited the promenade, or the assembly-rooms; but she would never allow me to go out without her. I could conduct her through the solemn gaieties of the place as if I had been her husband or her

brother, but the moment I left her side, I again became a wild, unruly child, that for pure pleasure would drown itself in the harbour, or throw itself from a rocky precipice. I am telling the truth, and will gloss over nothing.

At the assembly-rooms there was a large gambling-table, of a circular form, the sides being divided into compartments which represented certain prizes, and the centre containing an index which revolved at the will of the player. By placing a shilling on any compartment you chose to select, or by placing shillings on several compartments, you were entitled to spin the index once, and if its point stopped opposite a place where you had planted a coin, you were the winner of the prize which the compartment represented. These prizes were always very showy and valuable in appearance, and were generally small articles of ornamental furniture, in which Sheffield plate and Birmingham papier-maché predominated. Occasionally the visitors were tempted to try their luck by seeing young ladies bearing away elaborate work-tables and writing-desks; but whether they were not decoys, in league with the proprietors of the rooms, I have very grave doubts, upon mature reflection. There was a tradition running through the rooms that one fortunate young lady had once won a cottage piano by staking a lucky shilling.

We paid several visits to this temple of dissipation, professedly to watch the company and to listen to the music, but really to watch the players at the round gambling-table. My precise aunt was at last sucked into the vortex, and she used me as a shield to cover her speculations.

'Take this money, dear,' she said, 'and try your luck. You may win something to begin house-keeping with.'

I tried my luck with very ill success; and as fast as I lost one shilling my aunt supplied me with another.

'The young gentleman is very unfortunate,' she said to the man at the table and the company generally, while she slily pinched my arm so sharply that she almost made me cry.

I staked several other shillings, and spun the index wildly. At last I won a prize. It was a very cheap scent-bottle.

'The young gentleman *is* fortunate,' said my aunt, again pinching me sharply in the back and fleshy part of my arm.

'Here, aunt,' I said aloud, as I smarted under the pain, 'this'll do for that physic you use when you have the spasms.'

Of course I expected to be rated for my rude conduct when we returned home, but I was quite indifferent as to all consequences. I

knew she could only punish me by sending me back to London, and that was the very thing I most desired.

By degrees I found out the main reason that had induced her to send for me from town, and to treat me in a studied manner, as if I had attained my majority. I was just as much a child as I was a year before, but it suited her purpose to regard me as a young man, because of a little flirtation that she was carrying on with her seafaring lodger. Her maiden delicacy saw no impropriety, as long as I was near, in walking with the retired post-captain on the beach, or in meeting him on the pier and availing herself, in a very pretty, mincing way, of the large telescope which he always carried with him. I was allowed to walk behind them, before them, or at the side of them; sufficiently near to be recognized as one of the party, but not sufficiently near to hear what they said.

When I did happen to approach them more closely than usual, my aunt always seemed to observe me, and their conversation either ceased, or began to play about the different aspects of the weather. If I had been allowed to do as I liked, and to go where I liked, they might have courted each other until they became love-sick or idiotic; but it annoyed me exceedingly to be compelled to follow them, like a dog, without any liberty of action, or without being taken into their confidence. The old post-captain, to do him justice, seemed very well disposed to dispense with my attendance, and he bought me a large toy lugger, which he encouraged me to float in the water. My aunt, however, on these occasions, insisted upon having her camp-stool brought down within ten yards—exactly ten yards—of me, upon the beach, so that no person, not even the most censorious, could say that she was left alone with the old captain.

The courtship, under my aunt's judicious management, progressed very favourably, and the captain was bold enough to ask us—that is, my aunt—to join a pleasure excursion on the water. The object was to go round a certain distant island, in a small steamboat, with a select party; and my aunt, who dreaded the sea, but who also dreaded to say so, as she secretly desired to become a sailor's bride, made a promise to go, conditionally upon the weather proving agreeable.

We started about ten o'clock in the morning, with a party of some fifty of the leading people at the popular watering-place, and with a selection of players from the parade brass band.

The fares for the excursion were purposely kept high, in order to exclude what my aunt called the 'riff-raff.' The company was consequently of that highly select class which never ventures to address

any one without a formal introduction. This suited my aunt and the old post-captain very well, who were thus left to themselves as much as they desired; and as for me, I made friends with the stoker, the call-boy, the steward, and a man who played the trombone in the band, and never enjoyed myself so much during the whole time I was kept at the watering-place.

The weather was very calm and sunny until we rounded a certain point, and then the blue sea began to show unmistakable signs of uneasiness. A breeze had suddenly sprung up, it was impossible to tell how or from where; and the sky, which had been a deep spotless blue, was now streaked with lines of dirty yellow. The boat soon exhibited a desire to walk the waters like a thing of life, which it did by rising up at the head, and then flopping down with a splash into the ocean.

Perhaps my aunt was not the first person who was taken ill aboard, but she was certainly amongst the earliest. Her complaint began, as far as I could observe, with a general inattention to what the old post-captain was saying, and a general indifference as to how far from her I was standing or sitting, and as to what I was doing. It was at this juncture that I availed myself of her indisposition and my own freedom from illness, and made friends with the common persons on board, as before-mentioned.

My aunt soon gave way to a most unmaidenly love for raw brandy, which the old post-captain liberally administered out of a bottle in most seaman-like quantities. It was not charitable, perhaps, in me to rejoice at her sufferings, but I remembered how often she had forced filthy powders and sickening brown-coloured draughts down my throat, and it certainly steeled my heart against any feeling of pity.

It was no special weakness of my aunt that made her give way on this occasion, and lie at full length on a form, and even upon the shoulders of the old post-captain, for all the ladies on board, and most of the gentlemen, were more or less affected by the lively motion of the vessel.

I can only account for my own freedom from sea-sickness by the fact that during the twelvemonth my aunt had been away I had indulged very freely in certain swings and roundabouts, which were permanently stationed on a piece of waste ground not far from our residence. My poor friend with the trombone was soon afflicted with the prevailing complaint, although he strove manfully to keep his place in the band without flinching.

About three o'clock in the afternoon we ran once more in to shore, and there was no one on board who was not delighted at the termination of the excursion. My aunt had partaken so freely of the old post-captain's brandy that, to lessen the evil of sea-sickness, she had fallen into the other evil of mild intoxication. She was helped into a fly near the harbour by myself and her adorer, and driven to her house in a very glassy-eyed, yellow, and exhausted condition

'Edgegar,' she said, reproving and addressing me, 'your conducsh been shamefulsh in 'glectin' your poor auntsh, whosh been—mother to you.'

I am sorry to say that the old captain was ungallant enough to smile at this, and I wanted very little encouragement to set me off laughing loudly. At that moment we fortunately drôve up to my aunt's door, and the weather-beaten traveller was handed over to the care of a maid-servant, to be comforted with tea, and carefully put to bed.

The captain was seen shortly afterwards tranquilly smoking a cigar on the cliffs, and I was flying paper balloons out of a fourth-floor window. The next morning, at breakfast, my aunt was haunted with a vague horror that she had conducted herself very badly, and she made no allusion whatever to the excursion of the day before. She was most probably thinking that the old post-captain, disgusted with her conduct, would find some excuse to withdraw his attentions, and become lost to her for ever. Her fears were groundless, for before the meal was concluded her adorer sent in word by the servant that he wished to pay his respects, and he was cheerfully admitted, looking as radiant as if there was no such thing as bile in his whole constitution. His inquiries after my aunt's health were so tender and so sympathizing, that my dreaded relative not only dismissed all the fears she had conjured up in relation to her conduct on board the vessel, but in a moment of impulse she invited the captain to join us that evening at dinner. He was delighted, he said, to have the opportunity.

I pass over the dinner, which was doubtless very interesting to them, but very uninteresting to me, especially as I knew I was only stationed at the table to satisfy a scruple of society, and a dozen scruples of my precise relative.

After the cloth was removed and the tea was brought up, they settled down to a regular evening at back-gammon, while I was left to amuse myself in a distant corner with my box of paints; and I did so by drawing highly-coloured caricatures of my aunt and her adorer. When I was tired of this sport, about nine o'clock at night,

I threw myself on a large sofa at my end of the room, and was supposed to have fallen asleep. In this position I heard the proposal of the old post-captain for my aunt's hand, and her seemingly reluctant but really joyful acceptance of the offer.

As I fully expected, when the wedding came off, which I was supposed to know nothing about, I was wanted no longer—my mission was fulfilled; and I was sent back, to my great relief, to London. I was only too delighted to know that my aunt was safely disposed of, in all probability, for life; but my mother did not appear to share my raptures. To tell the truth, my aunt's husband was never a favourite with her. She took very unflattering views of his proceedings from the first; called him a schemer, an adventurer, and so forth. But it was against my Aunt Dobson that her anger was chiefly directed. It seemed to be her opinion that her sister was a very weak-minded, foolish woman, and that the old post-captain would look very sharply after the little property.

THE LAST STAGE-COACH.

I ONCE had a strong liking for a piece of country extending from the metropolis to a small market-town about forty miles distant, not at that time taken out of the hands of our dear old coaching friends, that we all loved so well. I liked the town because it was rather faded; because it was in an undecided transition state; uncertain whether it should accept, in a friendly spirit, the insidious advances of the proposed branch from the remote main line of railway, or simultaneously close the shutters of every shop and house, and emigrate to Australia in a solid compact body of village deserters. I liked it, because it was a sulky coaching chrysalis, determined not to develop without a severe struggle into the railway butterfly. I loved to hear its innkeepers, its fly-proprietors, and its runners of coaches, converse in the dingy, smoke-dried tap of the principal hotel upon the probability of the railway ever reaching them; and the injurious effects which it would have upon trade if it ever came so far. I wished for nothing more interesting than a discourse from such men upon the destiny of railway enterprise, its operation upon the country at large, and its final operation

upon itself. I have seen a small job-master (the owner of two broughams and three gigs, which he let out almost at his own price to commercial travellers, and others whose business or pleasure compelled or induced them to post across the country) at times driven almost mad by the strengthening rumours of the advancing iron-road: at others, when inflated with an extra pipkin of the best local beer, drawing himself up to his full height, and expanding to more than his full breadth, and resolving to oppose, single-handed, the tide of the threatened improvement. Some gravely shook their heads, and expressed a doubt whether, with all his capital, he was equal to the task; others hoped to see the day when a station would be opened in the town, but they very much doubted it.

I will not conceal the object that took me so frequently to this place—it was fishing. I will not divulge the name of my retreat, even now, because, like all true sportsmen, I am essentially selfish. I am not yet too old and rheumatic to give up the pleasures of the rod and line, and I do not therefore hold myself bound to publish the name of a town that can boast of a trout stream worth all the subscription fisheries in the three kingdoms. In those days it was a six hours' journey (costing, with the perquisites of coachman and guard, between one and two pounds), to reach my favourite and nameless retreat. Now I can run down in two hours at almost any period of the day for a few shillings, which is all the more reason for my secrecy. When I feel unwell in mind or body, I seize my old fishing companions, packing a few things hurriedly in a small black hand-bag, and take wing for my peaceful hermitage. It does not seem so secluded now, nor so pleasantly distant from the metropolis, as it did in the old coaching days; and sometimes I fancy that I can see the London smoke rising and floating above the trees, and hear the roar of the humming London life, as I lie upon the sloping grass banks watching my float and line gliding down my favourite stream. In the evening I return to the hotel or inn, and, having nothing better to do, I always spend an hour in the tap or smoking-room, listening to the conversation of the wise men of the village. Many times a year—more than I care to name—for the last quarter of a century, have I idled away my leisure hours in this manner; with various fortune as to sport, which grieves me little, but with uniform fortune as to health and amusement, profitably mixed with food for reflection. When I first went to the place, the town was in the full pride, profit, and glory of the old coaching days. From fifteen to twenty highly-

painted, well-horsed rolling-stages passed through from an early hour of the morning until a late hour of the night. Then the principal hotel was a sight to see. Horses standing outside in the road, porters rushing to and fro with luggage, ostlers busy with bright and complicated harness; passengers, both male and female, alighting from the roof of the vehicles by the assistance of ladders and the obliging guard; buxom landlady and neat chambermaids standing ready to give a reception to the guests; a clean, whitewashed archway floored with bright red bricks, and roofed with hanging hams, sirloins of beef, legs of mutton, and haunches of venison, while beyond were the extensive stables as prim as a Dutch farm-house, with an old carved wooden gallery running all round the yard.

Then the commercial traveller was a steady, deliberative, time-taking pioneer of trade, who rode his own horse, or drove his own vehicle, and not the bustling, high-pressure, watch-consulting, Bradshaw-turning, Manchester maniac who is left to us now. He was known as a bagman, and gloried in the appellation, without having the ambition to be regarded as a commercial gentleman. The coffee-room was then kept sacred for those persons of the superior classes who availed themselves of the luxuries and conveniences of stage-coach travelling, without going the length of indulging in private apartments. To obtain the coveted favour of a box-seat was an affair of many weeks' booking and many shillings' fee. He who got it by dint of patience, forethought, and capital, was an object of envy to his fellow-voyagers the journey through. He was a comfortable man, because (in the winter-time) in addition to his own shawls and rugs, he had the extra protection of the coachman's leather apron. He was a happy man, because he was the confidential repository of the vast stores of information about horse-craft, poured into his ear by the ever-communicative driver; and more because he was occasionally entrusted with the ribbons or reins during certain rests, or the temporary vacation of the throne of government by the lawful monarch. Turnpike-keepers were ready, obedient, and respectful; ostlers at roadside houses, where the horses had their mouths cleaned out with a wisp of hay and a pail of water, were positively bent nearly double with admiration bordering upon veneration—hoping, but almost fearing, that they might one day be called upon to fill a position of such imposing state and heavy responsibility as that of the driver of a four-horse coach through a first-class line of country. When the loaded vehicle rolled away after a change of horses, with four prancing

animals rather fresh just put to, any bystander might have heard some such conversation as this between the two men who led the relieved steeds, smoking and panting, up the yard :—

'Muster Simmons, he know a thing or two, eh, Bill?'

'As well as 'ere and 'ere a one, Jack.'

'There ain't the meare on this road as can get over him, Bill, when he's a-minded?'

'Not exactly, Jack.'

Sometimes, if the coachman happened to be a new, an illiberal, and consequently an unpopular hand, the remarks were not so full of unbounded admiration.

'Why he's no more use with four on 'em, Bill, than my little finger!'

'No more he ain't, Jack; I'll bring a boy as'll lick him any day with's own team on's own ground!'

'Any boy!—any hinfant, Jack!'

This was something like the existing state of things when I first began to visit my nameless country town. I soon became an inmate of some little importance at the principal hotel where I took up my quarters, being promoted from the numerical insignificance which attaches to a single lodger, who is at the same time a private individual with no rank or title, in a huge provincial caravanserai where they make up fifty beds. I was at last known and addressed by my name, and even allowed, when I felt so disposed, to pass half an hour in agreeable conversation with the landlady's daughters in the little parlour behind the bar. I have no fault to find with those young ladies, on the contrary, I could record much in their praise; but I am sorry to have to damage my reputation for gallantry by owning that I found more amusement in the tobacco-clouded atmosphere of the smoking-room than I did in their society, delightful as it was. At this period the first rumours of railway enterprise began to dawn upon the world, and also, after a decent interval, upon my nameless country town. I am not about to raise the veil, and expose to ridicule such humble, lowly, and simple-hearted, though a little ignorant and obstinate fry, as a village barber, two village drapers, several important agriculturalists, and the usual nightly visitors of a country hotel tap, by making a farcical record of their opinions upon the—at that time—incomprehensible wonder of the age. They spoke according to their lights, which were not very brilliant, and they had plenty of persons in authority, whose intellect ought to have been sharpened by early training and intercourse with the world—even quarterly re-

viewers and the like—to keep them in countenance, and supply them with arguments for their nightly gatherings. Everything that was solemnly launched in type in the metropolis against the new gigantic scheme, was punctually and carefully copied into the local newspaper of my nameless country town.

The central figure of most importance in the little arena of tobacco-smoke and discussion, was that of the principal coach-proprietor, Mr Burleigh. He owned many of the vehicles and stages, running to and fro from my nameless country town, and all the arrangements for the traffic on the London road. He was a tall, powerful, red-faced man, who spoke little or nothing, and drank a good deal of brandy. He was treated with much respect in the smoking-room, because of his capital and power of giving lifts at any time to his fellow-townsmen. To do him justice, I do not believe that any poor man, woman, or child, ever need have lost a chance of going free to London or any part of the country, if they had only asked Mr Burleigh for leave in a proper manner. His benevolence was not of that active, overflowing nature, that it burst out like a pent-up spring without being solicited; but it was to be got at, like many another man's in a higher sphere than Mr Burleigh, by appealing to his sense of importance. Mr Burleigh had not created his present position—he had been born into it.

Whatever hidden stores of wisdom Mr Burleigh possessed—and the frequenters of my hotel smoking-room gave him credit for possessing a vast fund—he carefully kept them to himself. The only words that I ever heard drop from him in the smoking-room, during the discussion of the great railway question, were his very favourite and somewhat oracular remarks of, 'Well, it may be very good, but I can't see it.' Then he would add, after a little reflection, 'No; I can't see it.'

In this way a few months—a few years—rolled by me, and I still paid my periodical visits to my nameless country town. One of the young ladies behind the bar had got married (to spite me, I suppose, because I was not matrimonially inclined); railways had advanced in the land a huge stride; the company, with one or two important exceptions, still assembled in the smoking-room of my hotel, and Mr Burleigh still held fast to his coaches, and could not see it.

Another period of a few years passed; another young lady behind the bar had got married; the barber of the town (my barber, whom I had indoctrinated with my views upon railways) had died, with opinions far in advance of his village and his age, leaving his business to

an only son, with these memorable words, 'Tummus! a great movement is coming—keep your heye on it!' Still Mr Burleigh held fast to his coaches (although he might have sold the whole stock over and over again); drank, if anything, a little more brandy, and could not see it.

In another year not only was a main line constructed through a not very distant part of the country, but (as I said at the opening of this paper) a branch was positively mapped out by the energetic directors to my nameless country town. I saw with my own eyes (and dared not interfere) one of the early surveyors seized by indignant villagers connected with the coaching interest, and ducked in a horse-pond.

That night there was an unusually strong muster, and great excitement in the smoking-room; with a powerful disposition to rally round Mr Burleigh as the representative of the coaching interest. No amount of sympathy, expressed or implied, could, however, obtain from him more than his oracular assertion, that he couldn't see it. What he really thought he would not say; but I believe that he rested his faith—as many of the interested townspeople present did—upon a local baronet to turn back the advancing tide of railway encroachment. My little friend, the job-master, with the two broughams and the three gigs, thought he was individually strong enough for the task without the assistance of any baronet or nobleman in the country; but he was rather pooh-poohed than otherwise by the general company, although he had a small circle of intense believers, who thought him fully equal to the undertaking.

The local baronet was one of the good old schoool: that is to say, he wore cord breeches and top-boots, swore every five minutes, got drunk with ale and brandy every night, patronized cock-fights when in London, and had given a belt with a purse of ten guineas to be annually fought and pommeled for by the youth of my nameless country town. His nose had been smashed by a fall during a fox-hunt, and generally he had the appearance of a champion of the prize-ring. His title was Sir Boxer Bully, Baronet.

Sir Boxer was the largest land proprietor in the whole county. He owned splendid parks, splendid forests, extensive acres, and enormous farms. No branch-line from the main trunk could possibly reach my nameless country town, unless it passed for many miles through the property of the popular local baronet; in fact, the shortest direct route would be along a natural valley in his family park, not far from his family mansion.

Now, the faith which the townspeople assembled in the smoking-

room of my hotel had in the anti-railway sentiments of the popular local baronet was very great; and I suppose that the silent Mr Burleigh shared in the general feeling. Everybody there knew that Sir Boxer's favourite recreation was to meet upon the road Mr Burleigh's Highflyer, Quicksilver, or Lightning four-horse coach, and relieve the driver (at the imminent risk of the passengers' necks) by tooling the prads for ten or twelve miles, like a real born gentleman, that he was; that is, according to the standard that was recognized in those days.

No one who had seen him in his broad-brimmed hat, his great coat, his buff leather gloves, and his narrow cord breeches, and top-boots, holding the tugging reins, and poising the canary-coloured, silver-headed, long-thonged whip, could hesitate about the nature and extent of his opposition to the proposed branch railway.

Another period of a few years passed by. Sir Boxer did oppose the railway, and prevented the extension of the branch to my nameless country town. Most of the inhabitants believed that this was done on principle; but a few of the sceptical and uncharitable—myself amongst the number—thought that it was because the worthy Baronet had not been offered his price. The railway pioneers had been liberal without doubt—as was the fashion in those early days of energy and enterprise—but an old aristocratic family park was not to be cut up for the benefit of rapid communication, like a common, plebeian farm. Therefore, Sir Boxer, for the present, remained doggedly passive.

In the mean time the directors had carried the railway to a point about five miles distant from my nameless country town; they then remained doggedly passive also.

The effect that this extension had upon coaching interests (although Mr Burleigh couldn't see it) was very injurious. The station was reached by the main road after two hours walk, or one hour's drive, and it then took about two hours more, with a fare of four shillings, to reach London. For a little time the inhabitants of my nameless country town looked shyly upon this new and cheap mode of conveyance; believed all the exaggerated stories of dangers to be feared, and accidents that had already occurred—circulated, I am sorry to have to believe, in the interest of the solemn Mr Burleigh; and rallied round that injured and suffering coach-proprietor; who, although he couldn't see it, had been wise enough to reduce his fares to meet the new competition. Gradually, however, one or two adventurous spirits had been induced to try the experiment of the road and railway journey to the metropolis; and

having returned, uninjured, with a favourable report of the sensations they had experienced, others followed their example, and the railway rose steadily in popularity in proportion as its novelty and the fear of its dangers wore off.

It was at this time that Mr Burleigh was subjected to his severest trial. About the general public of the nameless country town, small as it was, he did not care much; although every individual knew him, and professed a regard for him; but his own family began to turn against him. It was not exactly his own flesh and blood; that would, indeed, have been bitter; but, one morning, the sad intelligence was conveyed to him that his second nephew on the wife's side had started off, without the knowledge of his parents, to make his first journey on the railroad. The mother came round, with tears in her eyes, to apologize, explain, and condole with Mrs Burleigh; and Mrs Burleigh, in her turn, conveyed the apologies, explanations, and condolences to her husband. He did not say much—he never did; but he felt the affliction deeply. Still he resolved to fight the distant railroad, or die in harness in the attempt. His passengers dropped off, day by day, his luggage carrying had entirely gone, his daily consumption of brandy increased, and he was again induced, by the advice of friends and persons of experience, to reduce his fares. I think, at this time, he began to see it.

I continued my trips, as usual; and, fair weather or fine weather, clung to the Burleigh Quicksilver, and Highflyer (the Lightning had already gone to pay expenses) as if I had been the fine old English gentleman who lived in the olden time. There were many melancholy changes for the worse. The horses were not so rampant; the turnpike keepers were not so watchful nor so obedient; the ostlers were not so numerous, and those who were left were not so admiring and so respectful; the guard had gone, and the coachman put on the drag himself, when we went down-hill, by the mechanical contrivance of a rope that dangled by the side of the box-seat. Sometimes we drove several stages unicorn fashion—three horses instead of four. Gradually, one or two, then three or four, of the hotels on the line of road closed their shutters, stuck up bills all over their frontage, announcing a sale, or, when in a favourable position, let off the greater portion of their now unrequired premises for other business purposes. Some regularly broke down under the affliction, and, not finding a purchaser or a tenant, became dreary roadside spectacles of broken windows and rain-washed placards. Under this sad state of things, we had to alter our arrangements for changing horses. Our stages were

made longer; and sometimes the cattle were brought to us along a bleak, muddy lane, from a few wretched barns, led by stooping old men in dirty, fluttering, clay-coloured smock-frocks, who had much more of the potato-field about them than the stable-yard.

At these painful moments the old coachman, who had seen better days, if he was not moved to swear at the clumsy fingers of the inexperienced agricultural groom, relapsed into a moody silence, only broken by a sigh that was heart-rending in its depth and intensity. As we passed through long, straggling villages, there was none of that excitement at our approach which had marked our triumphal progress years before. No crowds were waiting to receive us as we rolled down the hill or up the hill, as the case might be; past the finger-post; past the duck-pond, scattering the affrighted poultry right and left; along the cottage-bordered street, round by the little tree-sheltered, square-towered church, and away again into the open country. A few barefooted, dusty children watched us slyly; some with their fingers in their mouths; some with their ragged pinafores thrown over their heads; some with their faces half averted, turned towards the wall. Our approach to my nameless country town was not, by a great way, the splendid entry that it used to be. There was no horn to blow, and no guard to blow it. At the hotel, too, things had vastly changed. It was still neat and clean, as it always would be in the possession of the buxom landlady, now growing a little old, a little gray, and very care-worn; but it wanted customers, it wanted bustle, and it wanted life. In the smoking-room the same company still assembled, with one or two exceptions caused by death, bankruptcy, or emigration; and the same engrossing topic—railway prospects and designs—was discussed with the same earnestness; but with a little less obstinacy, and a little more knowledge and experience, than a few years before. Mr Burleigh still endeavoured to keep up his important position amongst his fellow-townsmen, but evidently with less ease and more opposition than formerly. I was constituted a kind of umpire or referee for the little group; and many men who had doubted most energetically whether they should ever see a railroad within a hundred miles of my nameless country town, now appealed to me in the most barefaced manner to know if they had ever had the slightest misgivings about the ultimate establishment and development of railway enterprise. 'Mr Burleigh,' they said, confidentially, 'had not seen it—in fact, could not see it now; but they had seen it all along, although they did not like to make much noise about it for fear of alarming their neighbours.'

It was about this period that Sir Boxer Bully, Baronet, suddenly died. It was well for his credit with his tenants and townspeople that he did die, for he was just upon the point of acceding to the renewed offers of the railway directors, and allowing them to bring the railway through his property up to the town. Mr Burleigh would never believe this, but it was the fact, nevertheless. Not that the deceased baronet was suddenly afflicted with any compunctious visitings for the injury that his six years' silent, sulky opposition had done to my nameless country town, but that the living board of directors had just then thought proper to make an increased offer to the lately deceased baronet. All eyes—especially those connected with the fast-fading, dry-rotting coaching interest—were turned with anxiety to young Bully, who succeeded by his father's death to the entire property and the baronetcy. He was a tall, thin, mild, clerical-looking gentleman, as unlike his late lamented father as it was possible to be. He had spent much of his time in schools and universities, and had the most singular notions about literary institutions, dispensaries, public baths, and other novelties. The belt and purse of guineas for the best pugilist in the county were very quickly done away with, as well as a number of other similar footprints left by the late lamented fine old English baronet. The son's movements were so rapid, and his opinions were so peculiar, that the debate in the smoking-room assumed for several nights the form of whether the young baronet was sane or insane, and his sanity was, at last, only carried, after a severe struggle, by a small majority of two. Mr Burleigh, although, as usual, he did not say anything, was evidently in the minority upon the question. He had his doubts about the young man, and they were well founded; better founded than his faith in the unswerving protection-to-old-established-native-industry-spirit of the deceased baronet. Before the remains of the late lamented Sir Boxer Bully, Baronet, were decently covered, the pickaxes of the railway navigators were rooting up the turf of his sacred acres. Still Mr Burleigh was not quite capable of seeing it.

Another period passed by, much as the periods had passed before, and we arrived at last within a day of the opening of the railway direct from my nameless country town to the metropolis. A business appointment in London which I could not neglect prevented by being present at this ceremony, although I had been in the neighbourhood for a fortnight previously. At four o'clock in the afternoon of the day before the opening, I took my seat upon the box-seat of the Quicksilver coach (the Highflyer had gone the way of the Lightning)

to honour with my patronage the last journey to town it was intended to make. Mr Burleigh mounted by my side to take the reins—for he had been reduced to act as his own coachman for some months past—and he shook me by the hand in a manner that he, no doubt, intended to be warm, out of gratitude for my thoughtful kindness in supporting him on this trying and melancholy occasion.

It was no ordinary journey. It was a funeral of a four-horse coach, performed by its ruined but obstinate proprietor. As we wound slowly out of my nameless country town, many persons stood looking at us with various expressions of triumph, pity, and contempt; but I was the only individual besides the proprietor-driver in and about the coach, the last single passenger who had booked through for the last journey. It was a cold, dull, bleak day near the end of August. Masses of heavy cloud were flying above, which constantly foreboded rain, but did not bring it. Mr Burleigh was well stimulated with raw brandy at starting, and he did not fail to refresh himself with this liquid at every opportunity. The harness was getting old and out of order, and Mr Burleigh had frequently to descend from his seat to repair it, which caused considerable delay. As he drove mechanically along, he preserved a moody silence which I did not attempt to break, presuming that he was occupied with reflections that might eventually lead him to see it. At several of the lanes and barns where we changed horses, the men kept us waiting for full twenty minutes; but, as Mr Burleigh made no complaint, I held my peace, as it would have been refined cruelty to add quarrels to the horrors of this sombre journey. When we had got about half-way through, we picked up another passenger—a fat, sickly, pudding-faced boy, who was waiting at a turnpike with a shaggy, howling dog, half-a-dozen boxes, and two pounds of cake in his hand, with eight or nine people to see him off. There was a visible look of disappointment in Mr Burleigh's face when he found what an unusual number of spectators there were in this hopeful roadside crowd to one juvenile passenger. The boy was placed inside with the cake, and the door locked; the packages were soon disposed of, and the dog was put in the boot to howl and moan incessantly, and enliven our last journey.

Our time to arrive in London was properly half-past nine at night, but harness-breaking and brandy-drinking made it nearly one o'clock in the morning before we reached the Old Dragon Inn, at Smithfield.

Eight persons, chiefly females, were anxiously waiting for the pudding-faced boy with the dog and packages, and they made some cruel remarks to Mr Burleigh about the uncertainty of coach-travel-

ling compared with the railway. He did not reply, but stared vacantly at them as they disappeared with the boy up the street. The rotten gates of the Old Dragon Inn were slowly and painfully opened with a fearful creaking by an old, palsy-stricken ostler, with a voice that squeaked from the lowest depths of his slender stomach. He made some faint remark—no one could possibly tell what—as he led the horses and vehicle down the stone hill into the yard. It was a fitting grave to receive the last stage-coach, and the old ostler was its most fitting sexton.

The Old Dragon Inn was in a sadly changed condition since I had seen it last. My usual custom was to drop down from Mr Burleigh's vehicles outside the town, seldom coming as far as the end of the journey to dismount. Three or four years must have gone by since I had accepted the hospitality of the Old Dragon Inn; but, being unusually late, and determined to see the broken-down Quicksilver to its tomb, and its broken-down owner to his bed, I resolved to pass the remainder of the night in it.

Mr Burleigh took little notice of me, but made for a corner of the yard where a dull red light, caused by a candle shining through a curtain, denoted the position of the bar. I lingered a few minutes to look round and examine the changes that had taken place.

The principal entrance—a long passage lined on each side with what were formerly stables—was now turned into a narrow street of small, dirty, cattle-smelling houses, let out in tenements, and decorated with festoons of ragged, yellow clothes that danced upon clothes-lines, stretched across the thoroughfare from end to end. The old gate that opened into the main road was now closed, and the inhabitants slept soundly, and did not dream of being robbed of their humble garments.

Several pools of liquorice-coloured water were in the yard, presided over by rotten wooden pumps. The stones were saffron-coloured, broken, and uneven. The out-houses were falling to pieces, and the sky shone in numberless places through the broken roofs. Under one of these places of doubtful shelter was stowed a large pile of cheeses; under others, heavy carts that looked like grain-waggons; and also a few yellow-boarded vans with pictures of fat women, boa-constrictors, and learned pigs. The Old Dragon Inn could no longer afford to be exclusive; but was compelled to open its doors to entertain any man and beast that thought proper to knock at them. Sometimes it afforded shelter to the drovers of the cattle-market; sometimes, as in the present instance, it welcomed the motley mummers who were pre-

paring for the approaching Bartholomew Fair. Drums, boarding, poles, carts, and waggons were lying about the yard. The night was clearer than the day, and I had, therefore, no difficulty in observing these things.

I joined Mr Burleigh, who was still drinking raw brandy in the bar, and learned that every stable and bed-room in the inn, except one —a double-bedded apartment—was taken up by jugglers, horse-riders, tumblers, and fair-people. The bar was dirty and ill-stocked; the floor was half covered with mud and straw; there was a smell of rum, beer, and tobacco-smoke floating through the place; and the woman who attended upon us was sad, pale, and dowdy. While we were speaking, the old palsied, stomach-voiced ostler came in with a broken lantern, containing an expiring candle-end.

'I've guv the two mears a quartern-a-'arf an' three pennorth; but the old 'oss seems hoff 'is feed, sir.'

This was asthmatically said to Mr Burleigh, who replied at wonderful length for him:

'No wonder, Sam, no wonder. I'm off my feed myself.'

The woman behind the bar shook her head mournfully; the palsied ostler shook his head more than usual (for it was always shaking); and Mr Burleigh, having drained another glass of raw brandy, motioned the ostler to lead on with the cracked lantern, and departed from the bar without uttering another word. I looked at the dowdy woman for a moment, and learning from her glance that I was to follow Mr Burleigh, and share the double-bedded room, I did so without remonstrance, joining the broken-down coach-proprietor and the palsied ostler.

'We went under a low archway; past several dunghills; over several of the liquorice-coloured puddles; past some grunting pigs in a sty, over many uneven saffron-coloured stones, between a ruined mail-coach that rested upon three wheels, and a waggon, that, to judge by the sound of heavy breathing coming from it, was well peopled with sound sleepers; up some old rotten steps, on to an equally rotten gallery (the old ostler motioning us to be careful of one or two doubtful planks), under an open doorway into a large square low-roofed room, that had the general saffron-coloured appearance of the place, and the same faint smell of tobacco and the stables. It contained two beds, like tents, the covering of which was of the tint of parchment. One stood to the right near the door; the other at the further end of the room. Two bits of ragged carpet and two rush-bottomed chairs, near the beds, one high narrow washing-stand against the wall, and a

black, knotted looking-glass over the fire-place, completed the furniture. There was only one window, which opened upon the gallery outside the door.

I went to the bed at the further end of the room, and threw myself upon it in my clothes, amusing myself by watching Mr Burleigh.

'Sam,' he said to the ostler, as he was closing the door, 'bring up a crust of bread and cheese, and a pint of brandy.'

In a few minutes Sam returned with the required refreshment. Upon a plate, beside the small loaf and cheese, was a short table-knife with a thick blade that had been worn and cleaned down to a point, until it was like a dagger. The old ostler closed the door, and left us to our repose.

How long I remained lying there, watching Mr Burleigh, and at what precise moment I drew the dingy, parchment-shaded curtains of my tent-bed together, I cannot tell. I had certainly fallen into a heavy sleep, when I was aroused by the sound of a loud deep voice. I peeped through the closed curtain. The day, as far as I could judge, was just beginning to break, for there was a pale light in the room by which I saw the tall figure of Mr Burleigh standing up in his shirt-sleeves with his back towards me, and the short dagger-like cheese-knife held aloft firmly in his right hand. He was shouting loudly to the blank wall near the door when I first looked at him, but he immediately turned round towards me, and I involuntarily shrank behind the curtain, peeping through the smallest crevice I could possibly command. He then commenced a fierce plunging walk in a circle round the centre of the room; his eyes nearly starting from his head; his left arm contracted and drawn back with the hand tightly clenched; and his right hand making short, rapid, and deadly stabs with the knife at some visionary enemy whom he was chasing. The pent-up silence of twenty years had at length broken out in a violent fit of delirium tremens. Mr Burleigh could see it now with a vengeance. His thick voice coming from his foaming mouth, told that at every blow of the knife in the air, he cut to pieces a whole board of railway directors.

I kept my eye upon him through the closed curtain, as for one hour, or more (which to me seemed fifty years), he went unceasingly in his circle round the room. Silently and carefully I had moved the mattress of my bed, and had it ready for a shield in the event of his turning against me, which I momentarily expected. I heartily wished at that instant that I had never seen my nameless country town, its trout, its inns, its coaches, or its coach-proprietors. I thought of the

most absurd and trifling incidents of my past life; how I had once stolen a teetotum from a boy at school; how I had been unnecessarily cruel to the fish I had caught (although acting strictly within sporting rules); how I should have done much better by marrying and settling down with the youngest daughter of the landlady at the hotel of my nameless country town, instead of neglecting her, and her manifest partiality towards me, and going into the smoking-room to indulge in the savage luxury of gloating over the unhappy man before me. I then asked myself the most absurd conundrums, and replied to them by giving the most absurd answers. All this time the maniac broken-down coach-owner was circling round and round in his frenzy, and making a noise that I trusted every moment would arouse some of the sleepers in the waggon in the yard, if it did not reach the distant household. As I watched I saw the door fall back upon its hinges, and I thought my deliverance was at hand. I was doomed to disappointment. The door had been closed, but not fastened, and the vibration of the old floor, which went up and down under the heavy tread of the powerful and excited maniac, like the deck of a ship at sea, had caused it to open—nothing more. As I still watched the unfortunate coach-owner, I saw him stumble and fall backward. A plank had suddenly given way, and his right leg had gone through into the lath and plaster underneath. I was up in an instant, with one of the rush-bottomed chairs in my hand. It was a matter of life and death, for he was double my size and strength, and he had already recovered himself, and was made furious by seeing me. I jobbed the chair desperately against him, sending him staggering towards the fire-place, and then my nerve gave way, and I dropped my weapon, bounding out of the door and over the railing into the yard, without regard, in my excitement, as to where I might fall. I came upon a large hog slumbering in a pigsty, but before he could get up and revenge himself upon the intruder, I was running down the yard, and under the low archway, shouting loudly for help, for I heard and saw Mr Burleigh running after me along the gallery. I got to the showman's drums under the shed, one of which I struck heavily with my clenched fists, and the whole yard was soon in activity and motion. It was now broad daylight; drovers came out of stables; sun-burnt showmen and freckled women came out of vans, and out of the dwelling-house; several inhabitants of the small street where the clothes were hanging up, came out partially dressed to swell the crowd; a very fat lady (who I afterwards learnt was the Swiss giantess) appeared at the door of a show van under an out-house, exhibiting herself

regardless of profit; tumblers in dirty pink tights, and clowns in spotted dresses, half concealed beneath long ragged great-coats (nearly everybody seemed to sleep full-dressed), bounded in amongst the throng; and the dowdy bar-woman, who turned out to be the landlady and widow of the late landlord, brought up the rear, attended by the palsied ostler.

I was surprised to find that the maniac coach-owner, with the dagger cheese-knife, did not appear from under the archway, and I supposed that he was either waiting stealthily for a spring, or had destroyed himself with his own weapon. I told my story to the assembled and wondering group, and we proceeded cautiously in a body towards the quarter of the building where the double-bedded apartment was situated. We soon found the cause of Mr Burleigh's delay in making his appearance. He had again fallen through the rotten floor—this time the planks of the old gallery—and so fast had one of his legs been caught by the splinters which had wedged him up to the thigh, that all his efforts to extricate himself were useless. He appeared a little more calm—probably from exhaustion—and having been got out, by the exertions of one of the show-carpenters, without any broken bones, he was guarded to bed, more peaceably than I had ever expected. The doctor's report, the next morning, after a good bleeding operation, was far from unfavourable.

I left a few hours afterwards, much shaken and fatigued, to keep my business appointment, and I did not see or hear anything of Mr Burleigh for some years.

I still go down to fish in the outskirts of my nameless country town. It is, of course, much altered, and, in a commercial sense, it may be for the better. I get down at a small, clean, Gothic railway-station, and give up my ticket to a porter at the door, in whom I recognize an old coaching hanger-on, who has gone over to the enemy. I take my place in the short, thick railway-omnibus, which is licensed to carry six, but built to carry four, and jolt up to my old hotel.

One day, when I arrived as usual, I noticed a peculiar expression in the face of this porter, which foreboded something. As he took the ticket, and touched his cap, he said to me, confidentially—

'He's come back, sir!'

'Who, Dick?' I asked.

'Muster Burleigh.'

As he said this, he pointed to the driving-box of the railway-

omnibus, and, glancing up, I saw Mr Burleigh sitting there, looking much older, with the reins in his hand.

'He can see it now, sir,' said the porter, quietly.

'Yes, Dick,' I replied; 'he can see it now, Dick, and so can we all.'

RIDING THE WHIRLWIND.

MY railway carriage this night is not the padded saloon with the six chocolate-coloured cloth compartments, the blue and white binding, the wicker hat-rail, the cauldron-shaped oil-lamp (reminding us of the street-lights of our early childhood), the Scotch shawls, the Templar caps, the sandwich-boxes, the wine-flasks, the fur-rugs, the light literature, the latest newspaper, and the languid Corinthian first-class passengers. It is not that worn, dusty, drafty, bare wooden carriage, which in winter is an ice refrigerator, chilblain nourisher, and rheumatism cherisher, and which in summer is an oven of baked varnish, whose walls are decorated with that highest effort of advertising art—the picture of the man with the excruciating toothache, who would not use the ointment of the Druids, and who looks at you and your companions, the commercial travellers, piteously through the long hours of the night. It is not that large, roomy carriage, with the high wooden sides and the extremely narrow doorway, provided by the thoughtful care of a paternal parliament, at the rate of one penny per mile, in which the agricultural body is conveyed from place to place, smelling very strongly of beer, of cheese, and onions, and from which the agricultural face smiles curiously at every station out of those small, high, barred windows, which remind one of the travelling caravan which contained the tigers, or a private lunatic asylum of very severe aspect. It is not that breezy, open truck, in which a group of rough, cheerful, vocal navvies are conveyed with pickaxes and shovels to and from the scene of their daily labours. It is not that large, red, saloon carriage, emblazoned with the national arms, in which busy men are always sorting letters, and sticking them into pigeon-holes, and making up and sealing leathern mail-bags. It is not that large condemned cell, or travelling warehouse-looking carriage, in which fat carpet-bags, hat-boxes, tin-cases, and corded packages are all huddled together in

close companionship. My railway carriage to-night, which is a compound of the coal-cellar, the bakehouse oven, and the fiery dragon, is the conductor, the ruler, the guardian, and the leader of all these—it is the engine.

I have exchanged the comfortable warm interior of my first-class carriage—with the companionship of a German baron, looking out from the depths of a cavernous cloak, like a veritable Esquimaux, and an eminent French banker indulging in moody memories of the hateful sea—for a position on the edge of the coke-tender, sitting with one foot upon the sand-box, and the other upon the handle of the coke-shovel—a position which no money could purchase, comfortless as it may seem, but for which I am indebted to my esteemed friend, Mr Smiles, who, honourably known and distinguished in the ranks of literature himself, is always ready to serve a brother-labourer, without inquiring too curiously into the motives of his eccentric whims and fancies.

My companions are Tom Jones, of Wolverton, driver, and John Jones, of Lambeth, stoker; men not naturally taciturn, but whose occupation—combining constant care, vigilance, and attention, with the fact that, on an engine in full motion, you cannot hear a voice above the roar of wind and steam, and the clatter of iron—have made them averse to conversation. The large clock at the station is at the time of starting—half-past eight P.M.—the carriage-doors are finally slammed to, a sudden silence pervades the place, the guard blows his shrill whistle, Tom Jones answers it with a responsive shriek from the engine, and we start, slowly and gently, from London, with our mail express train for Dover. The lights are just being extinguished at that strange-looking Tooley Street Church—union of the ecclesiastical and the gas-works order of architecture—as we emerge from the iron shelter of the station into the outer wind and darkness. Not yet into the darkness, for in front of us is a brilliant galaxy of red, green, and white lights, looking like a railway Vauxhall—a display of fireworks —an illumination—a fête in honour of our departure, or a large variegated orrery suspended in mid air. Further on, as we leave the disks and semaphores and outbuildings behind us, passing the tan-yards, and branching out on the network of rails into the country, about New Cross, we appear to chase a solitary coloured lamp with lightning speed, and my imagination pictures us running towards a surgery for a doctor, in a very energetic manner. I can allow my fancy full play in looking at these signs; but to steady, patient Tom Jones, the driver, they are as the leaves of a book in which he often

reads a lesson of life and death to himself and his heavy responsible charge—signal lessons of danger, caution, and safety.

The roaring of the wind and the throbbing of the engine increase as our speed increases, until I,—who am seated on the edge of the coke-tender, with my head above the screen which protects the driver and stoker—become buffeted and deafened, and find it difficult to keep my seat. The whole country lies under a thick veil of dark gray mist, and the black trees and hedges rush past, casting a momentary shade upon the vision. On either side the white telegraphic posts pass in rapid and regimental succession the whole way through the journey. The small frail stations seem to totter as they go by; and we greet them with an additional roar, like a tiger howling for prey. When we rush through an arch we are covered for an instant with a circle of fire, and we leave behind us wreaths of light, white, curling smoke. I look forward, and I see a faint glimmer hovering round what my reason tells me must be the funnel of the engine, but what my imagination pictures as the real driver of the train, a stout, round-shouldered individual, with a short, thick neck, and a low-crowned, broad-brimmed hat, like the stage-coachman whom I remember in my youth. He sits up in front, as if upon a box, tooling with a quiet dignity worthy of a whip of the old school and the first water.

We dart across the country—between high banks, through valleys of chalk and sand—past trees—past roadside houses lighted up with the fires of a November night—starting away from twinkling villages like a skittish horse, or rushing madly across the quiet street with a roar and a whirlwind. While I am watching and speculating, steady Tom Jones and his mate, the stoker, have never moved from their posts, looking through their two large glasses in the screen before them for the various signals. Before me is the shining brass, and steel, and iron of the engine, a tin teapot with a long narrow spout full of oil, a small bundle of cotton and wool, the stops and valves, a hand lamp with a red glass, and the partly opened doors of two glowing, ever-craving ovens—the bowels of our steed—whose fiery hunger John Jones, the stoker, is constantly trying to satisfy with coke. When the doors of these ovens are open, it is useless to look at anything in front, for the eyes are blinded with the glare, and I, therefore, amuse myself by watching the chromatic effects of the light upon my garments as John Jones shovels in the coke from the tender behind me. My brown trousers turn green, and my reddish-brown tweed overcoat turns first a whitish drab, and by the time the

ovens have become nearly choked up with fresh coke, it has changed again to a dark rifle green.

A shrill whistle is given, and we enter our first tunnel. The roar and clatter are louder than ever, and the round-shouldered, thick-necked driver in front sits in holy calm with a halo of steamy glory round his head. The light seems to fall in streams on each side from the top of the arch; and when we emerge with another whistle into the open air, the sky spreads out suddenly before us like a fan.

I cast a look back at our train and see a sheet of light stretching out on each side like a couple of wings, yellow as a field of ripened corn, and divided by black bars—the reflection of the spaces between the falling carriages—as regularly as the oars of a state barge. I fancy in that lime-kiln-shaped shadow which is thrown across the light, and which runs up the chalk cliff as we go through the deep cuttings, I trace the familiar outline of my friend the German baron, who is sleeping luxuriously in his warm carriage; while the thin, uneven line that darkens the cliff on the other side must represent the form of the French banker, who is probably dreaming of the Crédit Mobilier, and forgetting, for a few moments, the memory of the hateful sea. I turn to look again at steady Tom Jones, the driver, and find him wiping the steam off his glass, and keeping his never-ceasing, vigilant, look-out a-head. At all hours of the day and night he is ready to ride on the whirlwind and direct the storm; to cast into the shade the performances of the genii of Arabian fables, and career through the air at the rate of a mile a minute with tons of animate and inanimate matter, for the very humble reward of from forty to fifty shillings a-week. The unwavering faith of the public in Tom Jones is something more than wonderful. They do not know him—they do not require even to see his face; but the mother trusts him with her first-born, the children trust him with their father, the brother trusts him with his sister, the husband trusts him with his wife, and, what is perhaps a greater mark of confidence, trusts him with himself; and they all believe that while they sleep he will watch—that fog and rain and sleet will not blind him—that fatigue and exposure will never cause him to close his eyes—that frost and snow will not benumb his faculties—that desperation, excitement, or mental disease will never shake the steady concentration of his thoughts and senses—and that where the swerving of a finger's breadth, or the carelessness of an instant, would send the whole precious freight to utter destruction, he will steer safely through all difficulties. and punctually deliver his charge at the appointed place at the appointed

time. And the public confidence is worthily placed. As he stands there before me in the glare of the coke oven, or the flickering light of the station, in the middle of the night, carefully oiling the joints of his engine, he is the model of an honest, conscientious workman, dutiful, orderly, and regular. May his shadow never grow less, and his engine never grow rusty!

The increased force of the wind and freshness of the air denote an approach to the sea-coast, and in a few minutes we are before the coke ovens of Folkestone, which remind one more of South Staffordshire than of Kent. A run through the glowing tunnels, and round the cliffs, carries us safely into Dover, where we part company with the Esquimaux German baron, and where the French banker is given up unconditionally and shudderingly to his natural enemy the hateful sea. I wish Tom Jones and his mate good-night, and I sink for a few hours into numerical insignificance as Number Two Hundred and Four, or something equally high, at the Lord Warden Hotel, trying in vain to sleep, with the roaring wind, the hissing steam, and the clattering engine ringing in my ears.

Punctually at eight next morning, I again take up my position by the side of Tom Jones, on the engine of the London express. The morning is fine and clear for November, the sea is breaking quietly over the sand and stones upon the beach, and the sea-gulls are flapping their long wings, and circling round the funnel of our engine, which does not look so like a stage-coach driver of the old school as it did in the night-mist. The round shoulders stand revealed in the morning light, as the brass, beehive-shaped manhole; the broad-brimmed hat is nothing more than the overhanging scroll top of the engine chimney. We start out of the station, along the coast-curve, at a fair speed, and rush towards what appears at first sight to be two upright letter-box slips, cut at the base of the high, steep cliff, but which develop, as we draw nearer, into two narrow, pointed arches, like the entrance to some old monastery, or cathedral. They are surely too narrow to admit the round, broad shoulders, and the low-crowned hat, and yet we are rushing towards them, reckless of consequences! Tom Jones did not appear unsteady last night, but now he increases the steam when he ought—or at least I think he ought—to apply the brakes, and John Jones seems equally careless. I see before me the prospect of being jammed up in the centre of a chalk-cliff, and dug out at the end of a few centuries, a petrified mass, like those hares which the newspapers tell us the woodman sometimes finds imbedded in the brave old oak, or the toad which the geologist discovers in one of

the formations. It is useless for the cold mathematical fiction-crusher to cry 'Fudge,' and say that I knew very well we were making for an ordinary tunnel, traversed by some sixty trains a-day. Let him put himself in my position, on the tender of an engine, going at the rate of forty miles an hour, towards what appears to be a common rat-hole, at the foot of a hill, with certain strings issuing from its mouth, and he will find even his sluggish imagination stimulated. Destruction or safety, there is small time for reflection. In an instant we are at the portals of the cliff, which widen at our approach, and I involuntarily shrink as we plunge through them into the thick, black darkness.

The roar increases, and the hissing is as if our way lay through Pandemonium, and over the prostrate bodies of a thousand-serpent fiends. There is not a glimmering of light now, it being day, except when the white steamy smoke is beaten down upon us from the roof. I, who look out a-head, can at last discern a very small open church-door, and through it I can see the faint gray-blue outlines of the country. The doorway appears to be rapidly advancing towards us, increasing in size, and the country becomes more distinct, looking like a bit of valley scenery, seen from some large old cathedral aisle. I have scarcely time to admire the setting of the picture formed by the sharp, well-defined outline of the arch, when, with a whistle, we find ourselves out of the tunnel amongst the sea-gulls and the hills. I now enter into the excitement of the whirlwind coach, which dashes with me on the tops of high level mountains, passes over iron bridges that answer the never-ceasing rushing noise, with a responsive roar, rushes down again into a deep valley with the sandy hills almost closing overhead; past groups of white-shirted labourers, looking like a flock of sheep; past pastures, in which the quiet, grazing cattle, grown wise in their generation, allow us to rush by without displaying either fear or wonder.

We now make for another cliff at increased speed, guiding our course towards a small, round, black target-mark at the base, about the size of a penny piece. As we draw nearer, it assumes the proportions and appearance of the entrance to a gas-pipe. Although I admit that our success was very great in going through the cathedral aisle, still I cannot help thinking that the round shoulders are rather too venturesome in trying the passage of such a circumscribed tunnel. But the railway architect delights in a close shave. He sends us round curves and under bridges within a foot of the top and sides—perhaps a yard, but, as I look at it from my point of view, it seems about an inch.

He sends us past walls, past stations, past houses, in the same spirit of economizing space; and although, by a strong effort of the mind, we arrive at the conclusion that it is all mathematically correct, still it is very difficult to convince the unreasoning senses of the fact, especially from the outside of an express engine. We near the mouth of the tunnel, which opens like the jaws of a whale to receive us, and with a wild shriek of the steam whistle, we are again in utter darkness. I do not feel my hat battered in, and I therefore conclude that the round shoulders have received no injury. I can pardon the imagination for performing any freak, while the body is careering through such a place. Where are we? Where are we hurrying to? Are we in a main sewer, or a dark passage leading fathoms deep under the sea? Is that rushing, hissing sound the cry of the great waters as they pass us in headlong fury on either side, full of strange and novel life; full of prickly star-fish, and dull-eyed, large-mouthed fishy monsters; full of a wondrous network of animal vegetables, and vegetable animals; and do I, with a sense of suffocation, resign myself to the embraces of the clasping polypi? Should I be astonished at a merman asking for tickets? Certainly not; nor should I be astonished at seeing a lurid glare coming from half-opened iron doors across the darkness, and agonized, hard-featured, red-faced men, standing to give a grim welcome to the awful realms of——.

I look out a-head, against the whirlwind, and in the far distance I see a small light yellow disk, the termination of the tunnel, which appears like a full moon resting on the waters. As we advance, the sides of the tunnel glisten with a faint light, and I appear to be flying through a gigantic telescope.

The scene changes again, and the yellow circle at the end becomes as the reflected disk of the large microscope at the Polytechnic. Two specks pass across the circle, like the insects in a drop of water; they are railway labourers crossing the mouth of the tunnel. The disk becomes larger, and the outlines of country are seen through the blue mist. They increase in distinctness, and the colours fill themselves in, one by one, until the whole stands revealed as a perfect landscape, into the midst of which we are suddenly shot, as if from the mouth of a cannon.

On we go, out of the sunlight into the mist, again out of the mist into the sun-light; past undulating parks, rich with the red-brown trees of autumn; past quiet pools and churches in among the hills; past solitary signal-men, and side-stations, where weary engines rest from their labours; past hurrying down-trains with a crash and a

whirl; and at last, through arches, in amongst the crowd of trains, each making for the London terminus. Then come the churches and chimneys, the line of docks and houses, the market-gardens, the tan-yards, and, on the line, the signal-houses, the coloured semaphore arms, extended like the variegated sails of a windmill; the men waving red and green flags, as if in honour of our approach; the other men, standing motionless, with projecting arms, like raw recruits under exercise, or a mesmeric patient in a state of catalepsy; the disks hanging like enormous pairs of spectacles across bare poles; the ringing of bells, the crowd of people, the final whistle of the engine, the grinding screech of the train, and our flying journey is completed.

ALL NIGHT ON THE MONUMENT.

IF a man wishes to become a real unwavering cynic, cultivating the unamiable quality of a thorough contempt for his species; if he wishes to realize, and become a convert to, the truth of the common-places of the preacher about the utter nothingness of the things of this world; if he wishes to enlarge his views of life, and to spring out of his narrow circle of folly, ignorance, and prejudice; if he wishes to take a calm and dispassionate review of the paths he has been pursuing; to see how far he has wandered from the right track, or whither his blind, unguided, walled-in steps now lead him; if he wishes to divest himself, for a few short hours, of the depressing feeling of adoration which the gaudy haberdashery of honour excites in him when it appears to his dazzled eyes surrounding the petted dolls of the earth, let him take up his position upon the misty mountain-tops which frequently shut in great cities, or, if nature fails him, let him labour to the summit of one of those lofty monuments—those light-houses of the land—which dwellers in crowded places have always loved to raise in the centre of their homes. Seen from such a place, the prince's chariot and the huckster's cart, the glossy citizen and the tattered beggar, the marble palace and the tottering rookery, your dearest friend and your bitterest enemy, are all merged in one mass of indistinguishable equality. Heard from such a place, the roar, the accumulated voice of the great city—lifted up in its joy, its labour, its

sorrow, its vice, and its suffering—sounds as the sharp cry of agony issuing from the mouths of men who are chained within the hateful bounds, by imaginary wants and artificial desires: yet it fills the heart with no more sense of pity than the united plaint of low-sighing pain coming from the wretched flies on yonder besmeared fly-catcher. It is the curse of excessive smallness to be ill-treated and despised. Men who would shrink with horror from wounding an elephant, will crush ten thousand insects under their heels, and whistle while they do it. Those black dots that hurry and wriggle through the crowded streets that look no wider than the passages of a beehive, what are they? Men with immortal souls; centres of happy households; fathers, brothers, and husbands, if you look them in the face; but, seen from the trifling elevation of a few hundred feet, they sink into the most miserable beetles that ever crawled down a gutter. Drop a paving-stone upon them, crushing a dozen at a blow, and even with your own father amongst the group, would you feel, from the evidence of your senses, that you were the perpetrator and witness of a horrid crime? You would probably be as one who sees a great battle afar off—sees a puff of smoke and the closing together of a few red lines—and who, while ten thousand men are lying dead upon the field, and thirty thousand children are weeping for their fathers, sits with the calm unruffled serenity of an Egyptian sphinx, the vacant placidity of a Nineveh monarch, or the silent contempt of the gods upon Mount Olympus. If the black dots in the deep distant street were to hustle, fight, and destroy each other, like the animalculæ in a drop of water, you would probably laugh at them, as you laugh at the insect battle when revealed to you by the powers of the microscope. May all this teach the same lesson to you as it does to me!—a lesson of humanity to the weak and small.

It was in some such spirit as this that, at four o'clock on the afternoon of Thursday, the thirty-first day of December, eighteen hundred and fifty-seven, I became the guest of the Right Honourable the Corporation of the City of London, and ascended their noble monument on Fish Street Hill, coming down to mingle in the world once more—after a period of seventeen hours—at nine o'clock on the morning of the first day of January, eighteen hundred and fifty-eight. I have nothing to urge in complaint of the want of readiness and courtesy displayed by the City authorities in acceding to my wishes. With the same hospitality which distinguishes the Guildhall and the Mansion House, Mr Bunning, the City Architect, exerted himself, at a very short notice, to welcome me to the bleak column of sixteen

hundred and seventy-seven. Mr John Bleaden, the official keeper of the Monument, also insisted upon his deputy staying up all night. Below there was a fire, in the event of my wanting thawing at any period of the long watch. The deputy came up once (about nine o'clock at night), evidently expecting to find me sunk in a dangerous sleep, as people are supposed to sink when exposed to cold for any long period in elevated positions; but finding me brisk and lively, and being told by me to go and brew half-a-gallon of egg-hot, he descended the long winding staircase very cheerfully.

My object in exposing myself all those hours in such an elevated cage on a winter's night, was not to gratify any lunatic whim (although I pride myself upon having that slight tinge of insanity which gives a spice and flavour to a man), nor was it for the purpose of scientific experiment; but simply to see the aspects of the night from hour to hour, and, under new circumstances, far away from convivial atmospheres (of which I have had enough) and my family circle (of which I have not had enough), to witness in a peculiar solitude—in the world but not of the world—the death of that old, rotten, bankrupt, swindling year that was just about to pass; the year upon which we all turned our backs with little sorrow and regret, and to witness the birth of that other new, untried year that we were just about to reach, and which, I fear, we turned our faces to with little hope.

I am a conscientious man; and although I know that in a great degree I have my public in my hands (for few men are likely to test my experiences by a similar experiment, and if they were so disposed, no two nights are the same throughout the year), still I will not abuse the trust confided in me; but will, to the best of my ability, record what I saw and felt on the borders of cloud-land without exaggeration.

The Monument is not the highest building in London—as every Londoner knows—but it has the advantage of being very central; its outer gallery, or cage, extending over the column all round, gives you the feeling—not an unpleasant one—of being entirely unsupported from below, as if in the car of a balloon; and while it is high enough to impress you with a firm belief in your immeasurable superiority to your diminutive fellow-worms beneath, it is not so lofty that it quite removes you from all sympathy with the doings and movements of those very contemptible, but very interesting, creatures to whom you belong.

Ascending on this winter's afternoon, at four o'clock, I find the City—from north to west, and from west to south—half encircled by

a high, black, dense wall, just above which shines the golden cross which surmounts Saint Paul's Cathedral. Fog and cloud this wall may be; but what a noble barrier it is! rising high into those purple heavens, in which the imagination may see more forms of golden palaces, and thrones, and floating forms than ever Martin dreamed of in his sleep, and which, when his feeble pencil endeavoured to put them upon canvas, with all their beauty, height, and breadth, and depth, degenerated into an earthly Vauxhall Gardens sticking in the air. Keep all the masterpieces of Turner—or any of the great colourists—down between the close walls of the City, but do not bring them up here to be shamed into insignificance by the glow of Nature. Then, the veil of fog and mist which covers half the City like a sea, and under which you hear the murmur and feel the throbbing of the teeming life—see it float away like the flowing skirts of an archangel's robe, revealing churches, bridges, mansions, docks, shipping, river, streets, and men, and tell me, lover of the picturesque, and dweller in the valley of coughs and respirators, wouldst thou give up this fog with all its ever-changing, glowing, Rembrandt-like effects, for all the brilliant, clear blue monotony of the vaunted Italian sky, and all the sharply defined outline and cleanly insipidity of Italian palaces? For the love of art and nature, say 'Never!' like a man.

The puppet men now hurry to and fro, lighting up the puppet shops; which cast a warm, rich glow upon the pavement. A cross of dotted lamps springs into light, the four arms of which are the four great thoroughfares from the City. Red lines of fire come out behind black, solid, sullen masses of building, and spires of churches stand out in strong dark relief at the side of busy streets. Up in the house-tops, under green-shaded lamps, you may see the puppet clerks turning quickly over the clean, white fluttering pages of puppet day-books and ledgers; and from east to west, you see the long silent river, glistening here and there with patches of reddish light, even through the looped steeple of the church of Saint Magnus the Martyr. Then, in a white circle of light round the city, dart out little nebulous clusters of homes, some of them high up in the air, mingling in appearance with the stars of heaven; some with one lamp, some with two or more; some yellow and some red; and some looking like bunches of fiery grapes in the congress of twinkling suburbs. Then the bridges throw up their arched lines of lamps, like the illuminated garden-walks at Cremorne—like the yellow buttons on the page's jacket, or the round brass-headed nails in a coffin.

Meantime the roar of the great city goes steadily on—the noise of

voices—the rumble of carts—the bells on the land and river—the crash and clinking of chains falling from heavy cranes into paved yards—the distant shriek and whistle of the engines on the railway, and the barking of dogs. Then another sense is regaled with the smell of warm grains from breweries, the roasting of coffee, and the frying of numerous herrings.

The different clocks have, by this time, struck the hour of eight—not simultaneously, for the City time-measurers are so far behind each other, that the last chime of eight has hardly fallen on the ear from the last church, when another sprightly clock is ready to commence the hour of nine. Each clock, however, governs, and is believed in by, its immediate neighbourhood. The lights are turned out, one by one, in the puppet shops. The glowing pavement before them becomes black. The last account is balanced, or the last item posted, in the puppet ledgers. The green-shaded lamps die out, and the puppet clerks and warehousemen join the great human stream that is flowing rapidly along the illuminated roads that lead to home. The City becomes blacker and blacker, and the twinkling suburbs seem to glisten more brightly, as the imagination pictures the faces of expectant wives, mothers, daughters, and sisters, looking out to welcome husbands, sons, fathers, and brothers, in carriage, cab, omnibus, and coach; or, in the person of the more humble or healthy pedestrian.

Many of those hurrying men fly from the City as Cain did from the murdered body of Abel; and it would be better that they should smite to the earth the trusting, loving circles of women and children that meet them at their doors, than whisper in their ears the dark, heavy secrets that are weighing like lead upon their hearts.

Nine; ten; eleven by the church clocks, and the great City, silent as death—save for the occasional rattle of a stray cab or omnibus—with all its treasures, its precious metals and its costly fabrics, is like one vast empty workshop left in the charge of a few policemen, a few porters, a few boys, and a few old women. Its dreamers and its workers are at rest—far away from its walls—preparing for that never-ceasing, ever-recurring struggle of to-morrow, and to-morrow, and to-morrow.

The moon has now increased in power; and, acting on the mist, brings out the surrounding churches, one by one. There they stand in the soft light, a noble army of temples thickly sprinkled amongst the money-changers. Any taste may be suited in structural design. There are high churches, low churches, flat churches, broad churches, narrow churches, square, round, and pointed churches; churches with

towers like cubical slabs sunk deeply in between the roofs of houses; towers like tooth-picks; like three-pronged forks; like pepper-castors; like factory chimneys; like lime-kilns; like a sailor's trousers hung up to dry; like bottles of fish-sauce; and, like Saint Paul's—a balloon turned topsy-turvy. There they stand, like giant, spectral watchmen guarding the silent city; whose beating heart still murmurs in its sleep. At the hour of midnight they proclaim, with iron tongue, the advent of a new year, mingling a song of joy with a wail for the departed.

Shortly after midnight, a volume of smoke bursts from the quarter of a great Southwark brewery, dense and vast as the clouds on which stood Polyphemus· when derided by Ulysses—stretching away in wreaths across Saint Paul's for miles over the Hampstead hills,—a contravention of Lord Palmerston's Act in the dead of night, so sublime and Titanic in its grandeur, that I should be paralyzed with fear if I attempted to inform against it. Far from having any design of the kind, I am profoundly thankful that so much pictorial effect—as in the case of the fog—can be got out of what is generally treated as a nuisance.

All night long there has been little or no rest upon the river; shouting of names, the passage of small craft, the sound of quarrelling, the throwing down of heavy metal bodies, and now, at one and two o'clock, the iron tug-boats move about, and the large vessel at London Bridge Wharf (probably for Hull) begins to get up her steam. The land on the other side of the water has contributed the shriek of the railway whistle at intervals all through the night; with the discharge of fog signals, like the occasional firing of guns, up to three o'clock, which sounds as if some eccentric military gentleman had chosen this mode of being awakened for an early train.

About four o'clock I hear the hissing sound of brooms in the streets at the base of my watch-tower, and I gaze over at the early puppet scavengers as they ply their sanitary trade. Looking down upon the dark, gray, quiet roofs beneath me, they present a strange uneven picture; like a town that has suddenly been half swallowed up in the earth, or a large slate-quarry, with masses of the material lying about, in rude plenty, in all directions. By this time Thames Street has become a valley of fire; and, at that gleaming corner by the Custom House, arise the noises of the busy Fishmarket. Towards six o'clock the twinkling suburbs—those red fiery stars of earth—begin to pale, and a narrow strip of dirty orange-coloured sky in the east, heralds the approach of daybreak. When the lamps are put out

in the streets below, about seven o'clock, there is, as yet, no daylight to supply their place, and whole thoroughfares seem to sink into the earth, bit by bit; while London Bridge appears to be chopped away, arch by arch, into the water. Then, a boundless sea of light gray mist covers the house-tops like a deluge; above which the thin spires of churches struggle upward, and you can almost fancy you see men cling to them in their agony to be saved. As the dirty orange slip in the heavens above becomes longer, broader, and brighter, the sea of mist gradually subsides, revealing a forest of pure slate-white smoke, which floats and curls from ten thousand stirring houses, awakened from their long night trance. Watch it for an hour—this other London nuisance; this domestic offering which every morning is sent winding up to heaven—and see the forms of unutterable beauty that it takes. Look at it, flowing up to, and wreathing round, yonder spire of Bow Church like a band of supplicating angels with long waving wings.

A small circle of steel-coloured sky above my head gradually widens, bringing more light; the mist forms a dense black wall round the City—this time from south to east, and east to north; and the moon, which started brilliantly from Whitechapel, is now, with diminished lustre, hovering over Blackfriars; helping to develop the sharp, clear form of the upper part of Saint Paul's Cathedral; still nothing more than the half of an inverted balloon. The dark gray churches and houses spring into existence, one by one. The streets come up out of the land, and the bridges come up out of the water. The bustle of commerce, and the roar of the great human ocean—which has never been altogether silent—revive. The distant turrets of the Tower and the long line of shipping on the river become visible. Clear smoke still flows over the house-tops; softening their outlines, and turning them into a forest of frosted trees.

Above all this is a long black mountain-ridge of cloud, tipped with glittering gold; beyond, float deep orange and light yellow ridges bathed in a faint purple sea. Through the black ridge struggles a full, rich purple sun, the lower half of his disc tinted with gray. Gradually, like blood-red wine running into a round bottle, the purple overcomes the gray, and, at the same time, the black cloud divides the face of the sun into two sections like the visor of a harlequin.

The marked change between night and morning, all takes place within thirty minutes—from half-past seven to eight o'clock.

At the latter hour the new year is fairly launched. The first new

day of work commences. New life is infused into the now restless but long silent city. The veil of night is removed from all the joy, and crime, and sorrow that it has covered; giving place to the mists of day in which the churches, streets, and houses come and go. The crowds of hurrying atoms, who have awakened to a new day and a new year, reluctantly leave the distant suburbs for the dark thoroughfares that now lead from home, and plunge once more into the whirling vortex of work, of speculation, and of trade. Unequal and vastly different they may be to each other, with all their outer and their inner trappings—their wealth and their poverty; their meekness and their severity; their wisdom and their ignorance; their weakness and their strength; their theories, their dogmatism, their palaces, their jewels, their pictures, and their cherished books—but, to me, they appear only as a set of amusing puppets acting a play, in which the sick man cannot walk so fast as the strong man; the wise man is one who does not get run over by something larger than himself; and the rich man is one who strides across another something in the road, instead of walking on the pavement. God help them all! They have struggled on for many weary years, and will struggle for many more, when I, and the structure that supported me so long, shall be numbered with the things that were.

ON THE CANAL.

FIRST STAGE.

THERE was once a great musical artist who, in a moment of weakness, was prevailed upon by the delusive promises of American managers to leave the sea-girt shores of England, and make the perilous and dreaded passage of the Atlantic Ocean. The vessel in which he sailed was large and well-appointed. The officers and servants were kind, obedient, and attentive. There was every luxury that the most delicate and enacting passenger could require; and they made New York from Liverpool after a delightful run of twelve days and a-half. Such were the impressions of all the passengers except the unfortunate and deluded musical artist. He could not appreciate or avail himself of the registered size of the vessel, for it always seemed to him to be a monument floating perpendicularly in the air, with himself always lying

helplessly and hopelessly at its base. The officers and servants appeared to him in the light of grinning demons. He loathed the idea of food, and the mere thought of luxuries afflicted him with something like the premonitory pangs of death. According to his miserable reckoning, the voyage, or purgatory, lasted about two hundred and fifty years. When he reached land he was a shattered man; and it was long before he could delight his expectant audiences with that delicacy of tone and precision of execution which had gained him his European reputation, and made his name a familiar sound in the consol market of Great Britain. He wandered from end to end of the American continent. He performed in curious Mexican cities, and wild settlements where gold was plentiful but refinement scarce. Looking upon the surging sea with hate and loathing and horror, he never had the courage to return to the country which was waiting for him with open arms; and he died at last in a Peruvian boarding-house, and was buried under the shadow of a plant whose leaves were as thick as the leg of a man, and as broad as the fish-pond of an English mansion.

I have a perfect sympathy with this dead musical artist. I hate and dread the sea. Far from venturing across the Atlantic, I even avoid the Straits of Dover; and I obtain my chief knowledge of foreign countries from pictures, dioramas, panoramas, Murray, the continental Bradshaw, and the descriptive conversations of my more courageous and travelled friends.

Like all persons of a circumscribed experience, I have a tendency to depreciate that which I know very little about. It is my habit to consider the Rhine a very much over-rated river, lined on each side, like a tea-garden, with mock picturesque ruins, such as Messrs Cubitt would be glad to build along the Thames or the Severn at a very moderate contract price. I call Paris hot and wearying; Brussels a provincial Paris; Vienna immoral; Holland foggy; and Berlin dull. Above all, I endeavour to impress all tourists with a strong sense of the duty of becoming home travellers, acquainted with the beauties of their own country, and the habits of their own countrymen. I set them an example by starting off with thick boots, a thick stick, scanty luggage strapped upon my back, and a very broad brimmed hat. I come back with wonderful stories of picturesque spots lying neglected almost under the very shadow of Saint Paul's Cathedral, and fabulous accounts of people and manners existing within a pistol-shot of Primrose Hill, or three hours' walk of Hyde Park Corner: less known to energetic travellers than the Kaffir races: more strange to cosmo-

politan dandies than Aztec life. I have associated with gypsies, to be grievously disappointed at finding them nothing like the bright and cheerful beings represented in the pages of story-books, and in the pictures of the music-sellers, but very dirty, wretched, miserable tramps, whose real way of life I found to be very unromantic and disagreeable, especially when the damp mists of the later autumn settled down upon the fields and woods, and they trod upon nothing better than the sere and yellow leaf. I have lived amongst railway navigators in a hut upon wheels, to be astonished at the wild and almost child-like simplicity of their nature, and the rude sense of order, justice, and honesty that existed in their strong bodies and feeble and uncultivated minds. Finally (as I am about to narrate), having nearly exhausted the land of my birth, I lately took to my natural enemy the water (but in its placidest condition), and, scorning to leave the country in which I was born and in which I hope to die, I glided for days and nights upon the silent byways of our inland canals; giving myself up without reserve to the unrestrained companionship of bargemen; accommodating my vast bulk to the confined space afforded by the crowded cabin of a Grand Junction Canal Company's fly-boat.

Having obtained the very readily accorded consent, advice, and assistance of the chairman of that Company, with the active and valuable co-operation of its obliging manager, one excessively wet evening in the month of August of the present year, I placed myself in a cab by the side of a friend and a large meat-pie, who were to attend me on the journey, and drove direct to the Company's offices in the City Road. There was a pleasing novelty in the earliest commencement of the voyage. Ordinary tourists start from wharves near the Custom House, or Saint Katherine's Docks; old-fashioned inn-yards, or White Horse Cellars; large and noisy railway stations; and some from their own stables, with a dog-cart and a fast-trotting mare. I was an extraordinary tourist, and my point of starting was a basin. The cabman who was hired for the occasion seemed to be greatly astonished at the direction of his drive. He knew I meant travelling by the portmanteau, the hamper, and the carpet-bag; and many as were the travellers whom he had driven in his time to meet conveyances, he had never been ordered before to a barge-wharf by the side of a basin, since he first had the pleasure of wearing a badge.

Goods, bales, boxes, casks, and cases were the uniform rule at the Company's station, and passengers a startling and once in half-a-century exception. As we entered the large gas-lighted, roof-covered yard, amongst a group of Warwickshire, Staffordshire, and Lan-

cashire bargemen, dressed in their short fustian trousers, heavy boots, red plush jackets, waistcoats with pearl buttons and fustian sleeves, and gay silk handkerchiefs slung loosely round their necks, we were looked upon as unwarrantable intruders, until received and conducted to our bounding bark by the attentive manager. We threaded our way between waggons, horses, cranes, bales, and men, until we stood before the black pool of water that ran up from the basin under the Company's buildings. Here upon its inky bosom was the long thin form of the fly-boat Stourport, commanded by Captain Randle, in which it had been arranged we should make our journey on the canals as far as Birmingham, or even beyond that town if we felt so disposed. The captain and his crew, consisting of two men and a youth, were prepared for our arrival, and we found a good allowance of straw in the hold, and a very light cargo of goods on board—thanks to the vigilant care of the manager. It was past midnight when we took our places in the straw—my travelling friend, whom I shall call Cuddy, myself, the slender luggage, and the great meat-pie—and were poled out of the Company's wharf into the broad basin by two of Captain Randle's boatmen, while the captain steered and the third member of the crew went overland with the horse to meet the Stourport on the towing path of the Regent's Canal, at the further side of the Islington tunnel.

It will, perhaps, be proper at this point to describe our craft, not that she appeared anything but a shapeless mass by the slender light of a cloudy night (the rain had ceased), but our position and prospects will be rendered clearer by anticipating the knowledge that we gained in the morning.

The Stourport may be taken as a fair specimen of the fly-boats which are now employed in the carrying trade upon the canals that intersect England in every direction, joining each other, and covering a length of nearly two thousand five hundred miles. For the conveyance of heavy goods that do not require a rapid transit, these boats still maintain, and are always likely to maintain, their position, unaffected by railway competition; and it has been demonstrated that with the application of equal forces, canal carriage will move at the rate of two and a-half miles an hour—(the average speed of the fly-boats)—a weight nearly four times as great as railway carriage, and more than three times as great as turnpike-road carriage. These fly-boats belong to various individuals, firms, and companies scattered throughout the country; the largest owners being my worthy hosts,

the Grand Junction Canal Company, who, in addition to being extensive canal proprietors, are also active carriers.

The length of the Stourport from stem to stern is about twenty yards; its breadth eight feet; and its depth nearly five feet. At intervals, along the centre of the hold, are upright poles and wedges, rising to a height of full five feet above the side edge of the boat; being a little higher in the middle than near the stem and stern. Along the tops of these poles are laid several planks which join each other, forming a slightly bent bow over the whole length of the hold. This framework is covered with a thick black tarpaulin passed over the horizontal planks, fastened tightly near the edges of the boat, and kept down by ropes, running across at intervals, like hoops, from one end to the other. An open space is left near the centre of the hold, through which the boatmen descend and ascend when any goods require landing. Here it was, under cover of this gipsy-like tent, that our ample bed of straw was spread.

At the extreme head of the boat, beyond this timber and tarpaulin structure, is a heart-shaped platform, large enough to stand upon; and, like the boat generally, strongly constructed, to be defended from the constant concussions against the lock-gates, and the constant wear and tear caused by friction against the lock-walls. At the stern of the boat is the smallest conceivable cabin, in which the four men —captain and crew—contrive to sleep, to live, and to cook. It runs up shelvingly from the sides of the boat to nearly the height of the tarpaulin's back-bone; and is covered with a flat deck; making it like a box. As you stand up in the little cabin doorway—which runs in a short distance, leaving part of this deck on each side of you—you can place your elbows comfortably on the top, or drop a coal down into the cabin-fire through the chimney, which rises to the height of two feet, close to the left side of your nose. Between the cabin-door and the small, raised, fan-shaped platform, upon which stand the steersman and the tiller, there is a little passage, across the boat, so narrow that it looks like a plank ribbon. This completes the size and outline of the Stourport, Captain Randle, which, in every important respect, is a model of its sister fly-boats. Seen at some little distance from a bridge, as they glide slowly and silently along the waters, these boats look very like the pictures of attenuated hippopotami floating down the African rivers.

We glide and bump, and bump and glide away from the lofty, hollow buildings of the Company, amidst the sound of echoing men's

voices, and the splashing of poles in the water; slowly past the wharves, and factories, and tile and whitening stores that line the sides of the basin; plenty of time being allowed for observation, as our pace is very slow—as it will be all through the journey; for we have gone at one bound a century back in the history of conveyance, and must be satisfied with an uniform and almost imperceptible rate of from one to two and a-half miles an hour. Our progress is the result of the poling of the two boatmen who stand on the top of the tarpaulin structure, upon the ridge of the boards which continually oscillate over the water. Here—with a pole several yards long, and of the thickness of a child's arm, with a hook and spike at the end, which is planted in the bed of the canal, and with the other end fixed under the arm—the boatman leans over the water, at a very dangerous angle, and impels the Stourport with its precious cargo, by a strong muscular walking-pressure of the feet upon the tarpaulin's back-bone.

About one o'clock in the morning we reached the Islington tunnel, and here we are enlightened as to another process of barge propulsion, called legging. A couple of strong thick boards, very like in shape to tailors' sleeve-boards, but twice the size, are hooked on to places formed on each side of the barge, near the head, from which they project like two raised oars. On these two narrow, insecure platforms, these two venturesome boatmen lie on their backs, holding on by grasping the board underneath, and with their legs, up to the waist, hanging over the water. A lantern, placed at the head of the barge, serves to light the operation, which consists in moving the Stourport through the black tunnel, by a measured side-step against the slimy, glistening walls; the right foot is first planted in a half-slanting direction, and the left foot is constantly brought over with a sweep to take the vacated place, until the right can recover its footing; like the operation known as 'hands over' by young ladies who play upon the piano in a showy and gymnastic manner. The Stourport, steered by its commander, Captain Randle, walks through the tunnel in the dead of the night, by the aid of its four stout legs, and its four heavily hob-nailed boots, that make a full echoing sound upon the walls like the measured clapping of hands, but disturb not the sleeping inmates of houses and kitchens under which they pass; many of whom, perhaps, are utterly ignorant of the black and barge-loaded Styx that flows beneath them.

We emerge from the tunnel, at last, and tackle to our horse. Our progress is then slow and steady, between the silent houses of Cam-

den Town; past the anything but silent railway carrying establishment of the Messrs Pickford; round the outskirts of the Regent's Park; under the overhanging trees of the Zoological Gardens; and through Saint John's Wood, to the termination of the Regent's Canal, and the commencement of the Grand Junction Canal, near the Harrow Road, at Paddington. About this time my friend and companion, Cuddy, who is remarkable for an appetite that requires satisfying at the most extraordinary times and seasons, could be restrained no longer from attacking the great meat-pie. A large watchman's lantern was handed down the hold; and, by its rather dim light, at exactly two A.M., the frugal meal began. The picture formed was of a mixed character; the pie, a bottle, and the grouping being suggestive of Teniers, while the lantern-light, and its effects, were decidedly Rembrandtish. The picture struck the astonished gaze of a Paddington lock-keeper, who had been man and boy at that lock for five and twenty years, and who had never seen anything like it in the hold of a fly-barge—always devoted to bales, boxes, and casks—during the whole course of his long experience. He gazed in silence, and went away while the lock was filling with water, only to return and to indulge in another gaze. No one connected with the boat volunteered to enlighten him as to the cause of the very unusual spectacle; and, after a time, which the junction of the two locks allowed him for rumination, he came up to the side of the boat, close to the opening in the tarpaulin, and delivered himself of a few words to myself and Cuddy. It may be that he had been solacing the solitude of his hut with something of a comforting nature, and had issued with an over-developed sense of dignity and authority. It may be that his temper was a little soured by seeing the bottle, and receiving no invitation from the eccentric passengers and owners to partake of its contents. Anyway, his tone was thick, and his meaning unfriendly.

'I don't know who you are, an' I don't know who you may be,' he began; 'you may be all right, and you may not; but I'm here to do my duty.'

Cuddy explained to him the very confined limits of that duty, which consisted in opening and shutting the lock-gates, and seeing that no one threw dead dogs or cats in the water, to obstruct the channel. This remark had an irritating effect.

'Sir,' he resumed, addressing himself particularly to Cuddy, who maddened him by drinking out of the bottle, 'I don't know who you are, an' I don't know who you may be, but I know my duty; if I didn't I hadn't ought to be here.'

Something called him away at this point, for a moment; but he returned immediately to the attack.

'I see a party in the barge,' he resumed, 'and how do I know who they are?'

'How, indeed?' replied Cuddy.

'Very well; I know my duty. I don't know who you may be—'

Our barge had, by this time, cleared the locks, and the argumentative, but language-limited lock-keeper was left behind upon a brick-work promontory, struggling with his frozen eloquence, and with many conflicting emotions. He probably thought that Captain Randle was harbouring visitors without the knowledge of the Company; or that a secret mission of observance, a surveying expedition, or a pleasure-party of eccentric directors was floating on the canal; and, while he was anxious to assert his official existence, and to show himself in the eyes of the great unknown as a highly vigilant and meritorious officer, he was mad with curiosity to know the meaning of the unusual group in the hold of the Stourport; and careful not to say anything that might be offensive to the ears of probable authority, travelling in disguise. No one had the charity to enlighten his ignorance, and he was left to pass the short remainder of the night, tossing uneasily upon his couch under the heavy load of a deep, dark mystery.

Before we leave the Regent's Canal, and join the Paddington branch of the Grand Junction Canal, to proceed in the direction of Uxbridge, we are received in the gauging-house of the Grand Junction Company, and the weight of luggage which we carry on board is measured by a barometer, which is dipped in the canal close to the sides of the vessel, fore and aft, and the results entered in a book from which we are rated. This necessary examination is made in the interest of canal proprietors at every junction where a barge passes from one property to another. The Grand Junction Company charge tolls to their own barges, the same as to others, the accounts of the carrying trade, and the canal trade, being kept distinct. This ordeal concluded, we are fairly launched upon the inland canals, and our regular round of canal life begins. In front of us is our butty-barge (butty being a Staffordshire term for foreman), destined to be our companion through the journey, and undertake the duty of sending a man in advance with a key, to get the water prepared in the locks. This is done by the driver of the horse, and is no inconsiderable task, when we know that there are nearly a hundred locks upon the Grand Junc-

tion property. The barges of all the large proprietors travel in tandem-pairs; and the task of lock-opening falls to the lot of the foremost barge. Each boat has a captain and three men, who work in lengths, or distances, of from six to ten miles; one man steering while the other drives, and attends to the locks; the other two sleeping or resting until their turns come to work the boat. The captain is responsible to the Company for the barge and the goods; and he receives a certain fixed payment in pounds sterling for the voyage. The crew of three men is employed, paid, and fed by the captain. The victualing of the vessel consists in shipping a sack of potatoes, a quantity of inferior tea, and about fifty pounds of meat at the beginning of the voyage; while large loaves of bread, weighing upwards of eight pounds, are got at certain places on the line of canal. If our pace is slow, it has the advantage of being incessant; for night or day we never stop, but keep on the even tenor of two and a-half miles an hour, except when, for about two minutes, we are delayed at each lock.

By degrees the novelty of our situation subsides a little, and we settle down for a few hours upon our straw bed. Cuddy is restless; and, having the weight of much historical information concerning canals upon his mind, which he has hastily crammed from cyclopædias, and such books, in anticipation of our journey, he suddenly finds it necessary that he should communicate to me an account of early Chinese, Assyrian, and Roman claims to the introduction and improvement of this very useful, agreeable, and economical mode of conveyance. Finding that I do not feel a proper and intelligent interest in the early origin and struggles of canals; that I do not care how the Chinese dug them; what the Egyptians thought of them, or what the early Greeks called them; knowing that I am familiar with every step in the noble history of the energetic, single-minded Duke of Bridgewater, and his worthy engineer and companion, Brindley, and all they did for canal extension in England,—Cuddy (who is not a bore, or he would not have been invited to join me on this voyage) changes his ground. Leaving me to wallow in the ignorance which I seem to covet, he appeals with more chance of success to the weakest point about me—my imagination. As a basis of operation, he explains in a popular manner the nature and construction of canal-locks. He tells me how our frail bark, the Stourport, will be admitted into a deep, narrow, oblong, brick well; and how, as soon as we are in the dreadful trap, two massive iron-bound timber gates will close behind us in

such a manner that the more the pressure is increased from behind, the tighter will they bind themselves together. Then he draws a fearfully vivid picture of the two gates in front of us—a single, slender barrier, that alone opposes the advance of an ocean—a hundred thousand tons of water forty feet above our heads, fretting to be at us, like a bear looking down from his pole upon the tender children outside his pit. Cuddy candidly admits that this barrier is secured by powerful and well-tried machinery; but qualifies the admission by his description of the persons who are supposed to regulate the action of this machinery. He puts it to me, whether I ought to feel secure in resting where I am, while a feeble old man from the lock-house totters out of his bed in the dead of night, with a glimmering lantern in one hand, and the fatal lock-key in the other, groping his way to the awful barrier; or while the overworked, drowsy, and perhaps headstrong boy, who travels along the towing-path with the horse, rushes at the fearful flood-gates to play with the deluge. What can I expect, but to be dashed backward and forward in a savage maëlstrom; or hurled, like a straw, with trees, haystacks, cows, and farm-houses, over the distant meadows?

Very true, indeed, Cuddy, very true, indeed—but do not, for mercy's sake——be so——shock—ing—ly——graph—ic. Sleep came at last. A fitful, feverish sleep. A very inferior balm, and nothing like great Nature's second course.

It had lasted, perhaps, an hour, when it was abruptly broken by a violent bump, which caused the devoted Stourport to tremble from stem to stern. Cuddy awoke, and sat upright; while I started instantly upon my legs. Everything was pitch-black. Not a gleam of light was visible. The rushing, hissing sound of bursting waters was all I heard. I realized our position in a moment; we had settled down in the bed of a lock, and the canal-flood had already closed over our heads. I flew to the spot where there had been an opening in the tarpaulin before we went to sleep, and tore it open. The moon was shining dimly in the sky, for it was now near daybreak. Our bark was certainly in the bed of a lock, rising gradually to the upper level close to the brick wall. The water was pouring in at the lock-gates; and the bump that had aroused us was the result of a more than usually violent concussion of the head of the boat against the upper gate timbers. The pitch-black darkness of the hold was caused by the fatherly tenderness of the boatman on duty; who, finding we were sleeping under the open tarpaulin, with a heavy dew coming down upon our unprotected heads, had drawn the rough and humble

curtain without disturbing us, and had innocently added to the horrors of our nightmare.

'Cuddy,' I said to my friend and companion, with something of severity in my tone, 'let us have no more of these graphic descriptions, just upon the eve of slumber.'

STAGE THE SECOND.

FURTHER sleep that night or morning, sound or unsound, on board the Stourport was impossible. We had experienced the effect of passing through our first night-lock; and, while comparing notes, we passed through a second, and then a third, until we decided that a bargeman's life was one continual bump.

Cuddy was aloft at half-past four, A.M., standing outside the opening in the tarpaulin upon the edge of the boat, holding on to the side ropes, examining the slow moving panorama of country, exchanging salutations with Captain Randle at the tiller, chirping popular airs from the 'Barber of Seville,' and glancing ravenously down at the great meat-pie. I arose, took my place at the opening on the other side, and found the morning fresh and cloudy; though giving promise of a fine day. Captain Randle's son was standing upon the narrow roof of the little cabin, beginning his toilet for the day, by combing his hair, that had been turned to a straw colour by much exposure to the air and sun. He was a light-eyed, full-blooded, red-cheeked, good-tempered, clean-looking young man of twenty-three. Presently he dipped a mop into the canal; drawing it carefully round the edges of a pair of remarkably heavy boots, that had never known brush or blacking in this world, and never would. A bargeman's boot looks more as if it had been turned out of a blacksmith's forge than a shoemaker's stall. It differs from a navvy's boot in being very loose. The navvy's boot is a laced-up article binding itself very close round the ankles—so close, in fact, that it seems a marvel how such powerful and gigantic bodies can be supported upon such frail props, without causing them to snap short off like pieces of tobacco-pipe. The bargeman's boot is an easy, full-sized blucher; with upper leather as thick as a moderate slice of bread and butter, and with soles like those worn by short performers who personate giants upon the stage. There is none of that finish, none of that rounding off, none of that dandy coarseness about them, which distinguishes the

shooting-boots displayed for show in Regent Street windows, or which gentlemen drag after them when they go upon the moors. Rude, uncultivated strength is the main feature of the bargeman's boot. The sole absolutely bristles with a plantation of gooseberry-headed hobnails; the toe and heel heavily strengthened with massive bandages of iron. Twelve shillings a pair is paid to makers, who reside upon the canal banks, for these boots, and they must be dirt-cheap if only to sell for old metal. The bargeman's stocking is another peculiar manufacture, worsted in material, bright, clear blue in colour, ribbed and knitted by village hands. It is twice the thickness of domestic worsted; serving perhaps as a shield to protect the foot from the attacks of the heavy boot. In other respects, the bargeman dresses chiefly in fustian. His trousers are always loose, short, and Dutch-built, and his jacket is a red or brown plush waistcoat with fustian sleeves. He wears a cap, a sailor's leather hat, or a brown hair structure, with a cloth top and a bright peak.

Captain Randle, who is still steering the Stourport, is a short man, between fifty and sixty years of age, with brown hands, a brown, honest-looking face, scanty light hair, small twinkling eyes, and a round lump of a nose. He looks fresh and clean, although he is yet unwashed, and has been up nearly all the night. Fifty years of his life have been spent upon the canals of his native land; and fifty years of a boatman's life means fifty years of boat. His land-home is in Stoke, in Staffordshire; and, although his chief line of route is now from London to Birmingham, and from Birmingham to Manchester, he does not leave his boat-home to pay it a visit above three times a-year. When he arrives at his destination he unships one load of goods, and takes in another, to return, without stopping, along the same road he came. Every tree, every bridge, every lock or house on the line of march is familiar to him as his own hands, and his reflections are not disturbed by the dangerous and troublesome gifts of reading and writing. His son, the straw-haired young man, has been taught to steer through a printed book; but the old man constantly laments the fact that he is not 'a scollard.' Like many wiser and greater men, Captain Randle has a strong tendency to overrate that which he does not possess; and he fully believes that, grant him but the mysterious and to him unknown arts of reading and writing, and there would have been nothing to prevent him, when he was a younger man, from becoming the Lord Mayor of London.

The other boatman, who is sleeping in the cabin, and the youth

who is driving the horse, are hearty creatures, with cheerful dispositions, large appetites, and little else to distinguish them.

After making a rough toilet with a bowl of water, a piece of yellow soap, and a coarse towel, we manage, with some dexterity, much exertion, and a little danger of falling overboard, to reach the small deck of the little cabin. This limited platform is the breakfast-table, dinner-table, tea-table, and sitting-room of the bargemen and their visitors during the summer months. If size is sometimes a luxury, smallness is sometimes a convenience; and as we take our breakfasts upon this poop—as Captain Randle calls it, in ambitious nautical phrase—we seem to have everything within our reach, and to be in the midst of everything. The captain stands in the doorway of the little cabin, with the upper half of his body visible above the deck, and the lower half roasting in close contact with the cabin fire. He makes tea in a large tin teapot standing on the poop, which holds two quarts; and it is no trouble for him to stoop down and bring up the steaming kettle from the cabin stove. We sit on the edge of the deck, with our feet dangling over the water; and, while I am patiently waiting for the brewing of the refreshing beverage, Cuddy is preparing for a ferocious attack upon the once great, but now rapidly-diminishing, meat-pie. The whole crew is assembled upon the deck and the tiller platform, the horse being left to tow the boat unled, with his head deeply buried in a small tin milking-can full of provender—a novel kind of nose-bag specially provided for barge-towing horses, that they may move, and eat, and breathe, at one and the same time. The tea, a weak and curiously-flavoured drink, is served out in basins without saucers, and, above all, without milk, this luxury being unknown in the victualling department of an ordinary fly-boat. It is sweetened with light-coloured moist sugar, ladled out of a drawer in the cabin, and is stirred with some of the rudest spoons ever made. The knives and forks are worthy of their companions the spoons, and they must have come from Sheffield when that distinguished town was first struggling with the earliest rudiments of its staple manufacture. The knife that Cuddy holds in his right hand, wherewith to demolish the pie, is a slice of iron, not unlike a Dutch razor in shape, and about half the size of a stage scimitar. It is stuck or wedged into a dark square wooden handle, that is indebted for any polish and smoothness it possesses to half a century's use, and the friction of Captain Randle's hard and bronzed hands. The fork has two prongs, one shorter than the other, and both black with the action of many years' grease and rust. The handle is much chipped and very dis-

coloured, looking like a very dirty piece of dark yellow soap. These appearances must be taken as representing inherent defects in the cutlery, and not a want of cleanliness on the part of Captain Randle and his crew.

The boat, considering its limited space, and its four inhabitants (now swelled to six), is a model of tidiness; and in the intervals of sleep, or the pauses of work, the youth with the straw-coloured hair is always dusting everything about him with a short hair-broom. He takes a pride in the cabin department of the Stourport, as any one can easily see, even if the father did not constantly draw their attention to the fact; and if any brass knob could not have been kept bright; if the full-sized teapot would not have done for a looking-glass; or, if any one by spilling oil, or dropping any other filthy fluid, had soiled the virgin purity of that spotless poop or deck, the young boatman with the straw-hair must have knocked somebody down or broken his heart.

It was well for us that the deck was kept clean, for our bread and butter had to rest upon it, without the usual domestic conveniences of plates. New as we were to our situation, we managed pretty well, although we occasionally suffered from a giddiness caused by the gliding motion of the boat, and a strong desire to drop over into the water. The hundred locks, which were destined to break our sleep, were also destined to disturb the even course of our meals. Every time we reached a gate—sometimes once in fifty yards—it was necessary to give up all considerations of eating and drinking, and to poise the basins of tea carefully in our hands, to prepare for the inevitable series of bumps and avoid a total spill. Curious as was the flavour, and mild as was the stimulus conveyed by this tea, it was the favourite and only drink, night and day—except water—not only of our own sturdy boatmen, but of all other sturdy boatmen, as far as my observation went. Beer and spirits were little used, and a pipe seemed to be a rare indulgence. Melancholy pictures of drunken brawls, improper language, constant fights, danger to life and property, hordes of licensed ruffians beyond the pale of law and order, which my cheerful friends had drawn the moment they heard of my intention to make an unprotected barge journey, all proved false before the experience of a few hours, and shamefully false before the further experience of a few days. We were inmates of a new home and friends of a new family, whose members were honest, industrious, simple, and natural—too independent to stoop to the meanness of

masquerading in adopted habits and manners, with a view of misleading the judgment of their guests.

As the morning developed, the promise of a fine day was fulfilled; and, passing through a brickkiln-looking country near Brentford, we proceeded in a zigzag direction towards Uxbridge and Rickmansworth. The further we went, the more did our long-cherished notions of the dry, utilitarian character of canals disappear, to give place to a feeling of admiration for the picturesque beauty of the country, and the artificial river, lying and running unheeded so near the metropolis. Now we were floating on a low level, deeply embowered in trees, which, in some places, nearly closed over our heads; now we were on a high level, commanding a view of woods and meadows, stretching away for miles; now we came to long avenues of stately trees, the valued heir-looms of ancient families and the growth of centuries; now we came to smoothly-shaven lawns, to parks, and gardens running down to the water's edge; now we came to long armies of tall, spear-shaped reeds, half rising from the water, and bowing with slow dignity and reverence as we passed by; now we came to distant red-bricked mansions, playing at bo-peep amongst lofty trees; then, as the graceful windings of our river carried us further into the bosom of the parks, we saw them for a few minutes standing boldly out upon the brow of a hill, and then we lost them at another turn in the stream; now we came to little side brooks, which broke musically over small sparkling waterfalls, gliding into our silent by-way, which carried them gently away; now we came to old rope-worn bridges that stood out against a lofty background of rustling poplars, whose tops were only familiar to the cloud-loving sky-larks; now we came to other bridges, the arches of which seemed half full of shady water, and closed in with banks of shrubs and flowers, through which it would be cruel to force a passage; and now we passed little Ophelia-loved pools, overhung with willows, tinted with weeds, and silent as roadside graves.

Reclining here and there upon the rich grass banks, or standing solitary, or in groups of three or four, upon the towing path, were patient anglers, all having the stamp of dwellers in the closest portions of the metropolis. They were common men to look at—unshaven, unwashed; with ragged clothes and with dirty shirts. The railway had brought them in an hour, and for a few pence, from Whitechapel or Bethnal Green; and whatever they may have been in their own lives, and their own homes, they could scarcely fail to gain a little

improvement from the short communion with the country, to which they had been led by the allurement of their favourite sport. One man, who fished by himself, was a middle-aged Jew, bearing every appearance of days passed in some yellow back-parlour, behind a store of mouldy second-hand furniture up an Aldgate court.

Our horses are as docile, intelligent, and well-behaved as the trained steeds of the circus; and, for many miles, they are left to go on unled, chewing their provender in their milking-can nose-bags. When they are free from this encumbrance, and they stop too long at a broken part of the bank to drink out of the canal, they are urged on by a shouting of their names and a cracking of the short whip by the steersman thirty yards behind them. At bridges, where the towing-path does not pass under the arch, the mere unhooking of the rope is sufficient, and the horse, freed from the weight of the barge, walks quickly up the incline, over the bridge, and down to the path, even when, as is frequently the case, it changes to the other side of the canal. There he patiently waits until his burden floats through, and the rope is again hooked on.

The Grand Junction Canal, passing in a zigzag direction through parts of Middlesex, Hertfordshire, Bedfordshire, Buckinghamshire, to Braunston, in Northamptonshire, is about forty-three feet in surface breadth, upwards of ninety miles in length, and, with one or two falls, is on a gradual rise from Paddington, where it ends in a branch, to Braunston, where it begins in a gauging-house. The locks are expensive structures, costing, when double, two thousand pounds a-piece; and many of them are so close together, that they form a series of steps in a waterfall staircase. These lock-stations furnish nearly the only examples of land-life that we come in close contact with; for the general course of canals is to avoid, where it is possible, passing through the large towns and villages, and wind round the extreme ends and distant outskirts of such places. Many of the lock-houses are very pretty. All of them are neat and clean. In some of the most important lock-houses, the keeper is seated in a little counting-house amongst his books and papers; in some of the smaller ones, rude accounts are kept in mysterious chalk signs upon the doorway or the walls. This is a favourite mode of recording business in broad open barges, engaged in carrying bricks, or other cargoes requiring to be reckoned by numbers; which numbers appear, not in numerals, but in broad chalk lines, marked on the sides of the hold. At all the lock-houses, coy little gardens peep out, and many of them are profusely decorated with flowers both inside and outside. One

cottage on the canal bank, connected with the canal traffic, is such a complete nosegay, that the word Office, and the City arms painted over its doorway, are scarcely visible for roses.

While the Stourport is working slowly through the foaming, eddying locks, and we are reclining upon its poop, or sitting astride of its tarpaulin's back-bone, we are objects of interest and curiosity to the lock-keepers, who salute us with 'Good morning,' or remarks about the day, while their wives and daughters peep slyly at the two unusual strangers from behind the thin shelter of their cottage curtains.

For strangers we are, and very mysterious strangers too, especially to the not over-keen intellect of Captain Randle. Any idea that he may at one time have entertained about our being upon a scientific engineering expedition, having reference to the present condition of the canal, must have been entirely dispelled by our gross ignorance of practical details. Sometimes, I fancy, Captain Randle had a vague notion that I was a person of enormous capital, bent upon purchasing the whole plant and business of his masters, the Company; and at these periods he must have had grave misgivings about the prudence of the worthy chairman and manager, who had sent us upon our tour of inspection in a lightly-loaded barge. Long before the shades of the first evening had fallen upon our journey, both the captain and the straw-haired young man had thoroughly settled that Cuddy was my favourite, cherished, and faithful body-servant, and he was accordingly addressed, after this, by the whole of the crew, by the familiar title of William. To add to the mystery of our presence, a French classic belonging to Cuddy was found upon the deck, and handed by the captain to the straw-coloured young man (the only one amongst the crew who could read) to decipher. Of course he failed to make anything of it, although we had not the pleasure of witnessing his attempt, and the book was placed carefully again upon the spot where it was found. Although I had heard the most wonderful distortion of language coming from the lips of the captain, such as saying 'useful matches,' under the notion that he was calling for lucifers; and, although I felt certain that any conversation with Cuddy, within hearing of our commander, was strictly private, incomprehensible, and confidential when carried on in words of two or more syllables, I could not resist the unamiable desire of accusing Captain Randle of a secret indulgence in the literary riddle belonging to my friend.

'Noa, Must'r Olly,' he said, in a somewhat melancholy tone,

slowly shaking his head (he called me 'Must'r Olly,' although it bore only the faintest resemblance to my name, from the same cause that made him turn lucifer into useful). 'Noa, I bean't a scollard; an' if I was, I couldn't read that!'

'Why not?' I inquired.

'Why?' he replied, with a simple smile of wonder, slightly raising his voice, and pointing to his straw-haired son; '*he* can't make onythin' of that, an' he can read a'most onythin'! You see, Must'r Olly,' continued the old man, following out a train of reflection he had fallen into, 'I'm a Coompany's man, an' I can't be messed about. I've been on these canals now, man an' boy, nigh fifty year, most o' that time wi' Mussrs Pickford, an' I've lived long enough to know that England is noa place for a doonce.'

'Well, but,' interposed Cuddy, with a good-humoured intention, 'you've worked hard, have done your duty, and are not very badly off, after all.'

'Noa, William,' returned Captain Randle, addressing himself to Cuddy. 'Noa, I'm not; an' if I left the boat to-morrow, I shouldn't starve, for I've managed to put by a pund or two in my time.'

This little property, to which the old man alluded, was, perhaps, about two hundred pounds; and, like all persons who have saved money under difficult circumstances, he was proud of his small possessions, and hinted at them on many occasions during the voyage.

'Noa,' he continued, still running, with an amiable and a characteristic weakness, upon the same idea, 'I be a doonce, an' I knows it; but I made my boy larn to read an' write, an' if I could affoord it, he shouldn't be 'ere now.'

'You haven't lost much, Randle,' I said, to comfort him, 'by not knowing how to read. You're well and hearty, anyhow, although near sixty.'

'Yes, Must'r Olly,' he said, 'I'm 'arty, thank Gawd; I eat an' sleep well, an' I can wurk well, though I'm goin' a little at the bottom of my feet.'

I was not surprised to hear of a little tenderness at the sole of the foot, considering the weight and make of a bargeman's boot, and his proficiency and frequent practice of the art of 'legging' under tunnels.

'This be a hard life, Must'r Olly, in winter time,' continued the captain, 'an' I'd be well out of it at my age, if I could see onythin'

to do me ony good. If I'd been a scollard when Mussrs Pickford broke up their boat-trade, ten years ago, I might a kep' on wi' 'em, and done somethin'; but I'm a Coompany's man, an' can't be messed about; an' when they wanted to make a porter of me at the rail'yes, I was obleeged to be off; and they sed, "It's no use: he means boatin', he does, so give him his crakter, and let him go."'

Captain Randle fully believed that, by simply writing and reading, he might, at this moment, have been sitting in the manager's chair at Messrs Pickford's offices; little knowing how very cheap, of late years, those accomplishments have become in the labour-market of his country. The tone in which he spoke of his intellectual deficiencies was affecting from its simple and honest depth of feeling; and it stopped any further attempts, on the part of Cuddy and myself, to play with this point in the old man's nature.

Man cannot be fed upon scenery and the outpourings of character, and in due course we find it necessary to take another meal. Dinner it ought to be called, according to the rotation in which it comes; but the meat-pie having been devoured (chiefly by Cuddy), and the fifty pounds of beef taken in at London, and all boiled off at once to insure its keeping fresh, not being to our taste, we are obliged to put up with a substantial tea—Cuddy officiating in the cabin as boiler of eggs and preparer of coffee. I go down to witness this interesting operation, paying my first visit to the small cabin, and gaining an opportunity of examining its fittings and dimensions. The kettle has boiled for some time, so the fire is low, and the heat is what the boatmen call moderate—like an oven about an hour after the bakings have been withdrawn. There can be no doubt that the cabin of the Stourport is the smallest place of its kind in the whole world; yet one half of it is divided off for the bed, which rests under a wooden arch at the end of the cabin, immediately opposite the doorway. This bed, with close packing, accommodates two men during their short turns-in for sleep, who lie under a piece of rope, a whip, a scrubbing-brush, an old umbrella, and a saw, all hooked on to the low roof. The bed rests in a perfect nest of cupboards, large and small, the doors of which are fitted with hooks that hold caps, brushes, and various small and necessary articles. The bed and clothes are very clean, and the painted decorations round the edge of the arch and on the doors were once gaudy, but are now faded. From the foot of the steps, running up to the arch, on the right-hand side of the cabin as you enter, is a low seat, large enough for two persons, and, of course, constructed with a lid to form a box. Opposite this seat, also close to the arch,

is a piece of furniture not unlike a compressed old-fashioned book-case. The upper part consists of crowded shelves placed in a gothic-arched framework, which is closed with a door whose hinges are at the bottom, and which fastens at the top with a spring. When this door is closed, it displays upon its surface a small round looking-glass, in which a boatman may shave, or comb his hair; and, when it is opened, it turns down upon its hinges, standing out, self-supported, at right angles, and forming the only table of the cabin. Close against the doorway of the cabin comes the stove, a substantial structure, with a low grate, a deep blower, a round fender (part of the stove), and a narrow funnel passing upwards through the low roof. Against the wall, near this stove, is a small oil-lamp; and over the cabin seat are more cupboards and shelves. Swinging from the roof is a water-can, which strikes your head when you stand upright; and near your feet is a tub, into which it is almost impossible to prevent stepping. The ship's papers are strapped on to the ceiling, and every inch of space is carefully economized. Everything is scrupulously neat and clean, and wherever a piece of metal is visible, that metal is sure to shine. The Stourport is rather faded in its decorations, and is not a gay specimen of the fly-barge in all its glory of cabin paint and varnish; but still enough remains to show what it was in its younger days, and what it will be again when it gets a week in dock for repairs at Birmingham. The boatman lavishes all his taste, all his rude, uncultivated love for the fine arts, upon the external and internal ornaments of his floating home. His chosen colours are red, yellow, and blue: all so bright that, when newly laid on and appearing under the rays of a mid-day sun, they are too much for the unprotected eye of the unaccustomed stranger. The two sides of the cabin, seen from the bank and the towing-path, present a couple of landscapes, in which there is a lake, a castle, a sailing-boat, and a range of mountains, painted after the style of the great teaboard school of art. If the Stourport cannot match many of its companions in the freshness of its cabin decorations, it can eclipse every other barge upon the canal in the brilliancy of a new two-gallon water-can, shipped from a bankside painter's yard, at an early period of the journey. It displayed no fewer than six dazzling and fanciful composition landscapes, several gaudy wreaths of flowers, and the name of its proud proprietor, Thomas Randle, running round the centre upon a background of blinding yellow.

Small as the Stourport cabin is for four full-grown boatmen (leaving out its two present visitors), cabins just as small, and furnished in

most respects in the same manner, are made to accommodate large families that spring up amongst the river population.

The Grand Junction Canal Company do not allow any of their barges to be turned into what are called family-boats; but amongst the small proprietors there is no such restriction; while the slow-boats, or boats that only travel during the day, resting at night, because towed without a change of horses, belong, in most cases, to the men who conduct them, and who, of course, are free to act as they think proper. The way this freedom is exercised is shown by the pictures of family-barges, and their internal economy, which pass us at every turn. There is the boatman, and his wife, a stout, sun-burnt woman, and children, varying in number from two to ten, and in ages from three weeks to twelve years. The youngest of these helpless little ones, dirty, ragged, and stunted in growth, are confined in the close recesses of the cabin (the tarpaulin-covered part of the boat is inaccessible to children), stuck round the bed, like images upon a shelf; sitting upon the cabin-seat; standing in pans and tubs; rolling helplessly upon the floor, within a few inches of a fierce fire and a steaming kettle; leaning over the edge of the boat in the little passage between the cabin-doorway and the tiller-platform, with their bodies nearly in the water; lying upon the poop, with no barrier to protect them from being shaken into the canal; fretful for want of room, air, and amusement; always beneath the feet of the mother, and being cuffed and scolded for that which they cannot avoid; sickly, even under their sunburnt skins; waiting wearily for the time when their little limbs will be strong enough to trot along the towing-path; or dropping suddenly over the gaudy sides of the boat, quietly into the open, hungry arms of death. When these helpless creatures reach five or six years of age, they are intrusted with a whip, and made useful to their thoughtless parents, by night and day, as drivers of the horse that tows the boat. There are little tender girls, in heavy boots, slouched sun-bonnets, and dusty clothes, running on either side of the rope, or under the horse's legs; tugging at the harness; maddening the animal with all a child's impatience; and imitating the coarseness and violence of a boatman's voice and gesture, with all a child's exaggeration and power of mimicry. Not a week passes but what one of these canal-children is drowned in the silent byway upon which they were born; and, painful as the incident is, it is too common to excite much observation.

Captain Randle shakes his head mournfully when we talk of these things.

STAGE THE THIRD.

ANOTHER feverish night of lock-bumping, roaring of small cataracts, and, this time, the puffing of a wheezy engine pumping water from a low reservoir into a high level part of the canal, and we arose from our hold very early to be conscious of the absolute necessity of providing our morning's breakfast. We had coffee, and we had stale bread; while the Stourport larder had also stale bread, many pounds of the beef, and some of the inferior tea, still on board. But we were getting dainty—hungering, not exactly after the flesh-pots of that civilized Egypt we had lef behind us, but after rural luxuries, familiar to us in the pages of those poetical rhapsodists who are never tired of singing the praises of the country. Where were the new-laid eggs? where were the fowls that laid them? where were the autumnal fruits? where was the delicate bacon? the cottage bread? the cream as thick as paste? We were sensible of feeling money in our pockets, and we demanded to be fed; and we consulted Captain Randle upon this important subject. That experienced commander would not give us a plain, direct answer, but encouraged us with the hope of reaching a village bordering upon a lock in about an hour, where he thought, in all probability, we should get what we required. He was only artfully concealing his ignorance; for, familiar as he was with the line of route, he knew less than an infant about the commercial provision-supplying capabilities of the towns and stations on the canal, for the very sufficient reason that he never had had occasion to test them. His phantom promised village seemed to recede as we advanced, until we had almost given it up, when we came upon it suddenly through a bridge, about half-past six in the morning. A glance at the High Street showed us in a moment what a stony-hearted, fruitless place we had at last fallen upon. It was nothing but a collection of thatched barns, with closed yellow curtains, and sleeping inmates; while the damp white mist came steaming along from the small silent church, making, at best, a cheerless picture in the eyes of two hungry travellers. The crowing of a distant cock only added to the melancholy idea of hopeless solitude. We turned with heavy hearts, and retraced our steps over the bridge to the barge, to reproach Captain Randle with his perfidy. On the towing-path, we came full upon an old man carrying two large pails of fresh milk, just drawn from a group of cows now standing

empty in the neighbouring meadows. Our desire to purchase some of this precious fluid was treated with moody silence, not to say surly contempt; and, when we offered a price gradually rising until it reached the height of one shilling a pint, with no visible effect upon the holder, we felt very much inclined for a little highway robbery. We were only saved from this crime by the interference of our deceitful captain, who told us the milk belonged to the carrier's master in the town, and that it was 'as good as the place of the mon wur worth, if he dared to sell a thimbleful.' The man might have told us this himself, if he had not been a boor.

We went on to the lock, and found a cottage where two loaves of bread, a blacking-bottle, some hearthstone, and a few balls of worsted were displayed in the window; and, after knocking hopefully at the door, it was slowly opened by a youth, who stood across the step as if to impede our entrance, while a middle-aged woman, most probably his mother, sat upon her chair by a table in the room, without taking the slightest notice of two such wealthy and anxious customers. We found that our canal journey had brought us to a land where the ordinary relations of buyer and seller were reversed; where it was looked upon as a favour granted when an article was sold; as an obligation incurred when an article was allowed to be purchased. We were kept at a respectful distance by the owners of the cottage-shop on the canal bank, and graciously allowed to buy a few eggs and some bacon; for nothing more could be seen, except large loaves of stale bread, which we had already more than enough of on board the Stourport. We managed to make a tolerable breakfast with our purchases, and Cuddy distinguished himself particularly by the manner in which he made a number of eggs supply the place of milk in the coffee. Captain Randle looked on, and regarded us with a half-fatherly interest, at the same time that he felt we were problems which he should never be able to solve.

The captain always spoke of the 'Coompany,' as if they stood bodily before him in the persons of one or two individuals, and not as a pure abstraction which he had no personal acquaintance with. He must have had a pretty fair idea, too, of the number of shareholders, by the way in which he reckoned a dead horse as a loss to them of only fourpence a-piece. Captain Randle's life had not been very eventful, nor his experience very wide, and he was, consequently, rather limited in his topics of conversation. His stories were not numerous, and his mind seemed to run very much upon three or four

ideas, which he clung to with characteristic pertinacity, as being his only holds upon the past.

His son, the straw-haired boy, had, some years ago, fallen into a lock, along with the horse that was towing the boat. The boy sank beneath the animal, but was got out after great difficulty, the horse being drowned. The old man had to report at head-quarters, as a matter of form, the nature of an accident that had caused the Company the loss of a horse; and whether, anticipating a demand being made upon him for the value of the animal, he had, with great difficulty, arrived at an exact estimate of the amount of individual loss to each share-holder, I cannot tell; but he certainly never missed an opportunity of saying to me, when telling the story—

'You see, Must'r Olly, it wur only fourpence a-piece, all round.'

Another of Captain Randle's fixed ideas was a wonderful faith in the abilities of a brother who had recently died, and who appeared to have been the wild erratic genius of the family.

'Ah, Must'r Olly,' said the old man, 'he wur always drinkin' and fighten' about; an' if ony mon said anythin' to him, he could cut him loike a knife. Dear, dear, he wur a room chup, poor Bill; I've seen him stan' on's head on a table dancin' a 'ornpipe in the air like mad. But he never did ony good for hissel', Must'r Olly; never ony good.'

It was while in familiar conversation with Captain Randle, allowing him to convey his own small stock of stories and ideas uninterruptedly in his own way, that he made us acquainted with a great contractor, whose operations, if only allowed to develop, would have rivalled in magnitude and money value anything ever accomplished by Mr Peto or Mr Cubitt. This unknown contractor may have had little existence, except in the brain of Captain Randle; but that did not prevent our worthy commander from bringing him before us, with his offers to the Company, at almost every hour of the day. Never did we mention to the captain that the canal was making a wide circuit without much progress through the country; never did we come to one of those gradual, step by step, rises in the ground, and an expensive little staircase of locks; without being told what this great unknown contractor had offered to do.

'You see, Must'r Olly,' said the Captain, 'what this Coompany wants is another toonnel, runnin' under that groun' yander, an' cutting off sixteen locks at once.'

'An expensive job, captain,' I replied.

'Must'r Olly,' he continued impressively, 'this mon told the Coompany they'd save it in twenty year, an' he offered to do it for a million an' a 'arf.'

'Who is this man, dealing in such large sums?' asked Cuddy.

'Well, he be a lock-keeper, William,' said the captain.

I endeavoured to explain to our commander (but with no effect), how gladly many contractors would have undertaken the proposed task for something considerably less.

'Noa, Must'r Olly,' he said, 'a million an' a 'arf is what he offered to do it for; an' he told the Coompany it would be the making of 'em.'

By this time the sun was getting high in the heavens, and we had finished breakfast; while Captain Randle was now busy dishing up an early dinner for himself and his men. This consisted of large lumps of the boiled beef, mixed with slices of bacon, and all fried together in a pan. When it was put upon a plate on the deck, by the side of an eight pound mountain of bread, the salt-box, and the pepper-box, it looked so very fat, so very yellow, and so very greasy, that Cuddy, who frames his conduct upon polite models, thought we ought, in common courtesy, to leave the boatmen to enjoy their meal undisturbed. Before his thoughtful suggestion could be carried into execution, and we had leaped off the barge on to the towing-path, under a bridge, to take a morning's walk, Captain Randle detained us for a few minutes by a favourite question, which he always would put to us when the Stourport's victualling system was in any way brought under notice.

The captain felt a complete identity of interest with his butcher, with whom he had dealt for upwards of twenty-five years; and he was always asking us, what estimate we could form of the probable extent of this great provision dealer's business.

'How many beasts d'ye think he killed last Tuesday?' inquired the captain.

'Two,' we said, by way of a wild answer.

'Fifty beasts!' returned the captain. 'How many on Friday?'

'Four.'

'Thirty-nine.'

'And as fine as that beef on the plate?' I inquired.

'Ev'ry one,' returned the captain, in an outburst of admiration; adding, 'I can't be messed about wi' a lot o' small butchers, Must'r Olly.'

Leaving the Stourport a little way behind us, we caught up to our butty-boat—the barge in advance—and made a more intimate acquaintance with one of its men; a cheerful, playful giant, whom we had observed in the distance, on many occasions during the last two days, gamboling upon the towing-path. He was about six feet three in height, not very upright in body, although not more than twenty-eight years of age; and as red in the face as any North American Indian. He was dressed in very loose trousers, the usual heavy boots, and a common white shirt, which he wore wide open at the chest, and rolled up above the elbows. Everything that this giant did was rude, clumsy, violent, energetic. He never walked quietly by the side of the horse, but was always breaking into a loose, straggling run, throwing his long and powerful legs wildly from side to side, and making an iron clatter upon the pathway that denoted an amount of wear and tear almost equal to the action of a horse. The giant seemed to have no fear of a sun-stroke, for he coqueted with it like a salamander. The burning rays poured down upon his face and neck, making them shine like a copper tea-kettle; yet the playful Titan kept plunging on; every bone in his body jolting as he went. I do not believe the horse he was driving was naturally a restive and refractory animal, except under a strong sense of physical rivalry, which it felt by the side of its driver. If it had only been left alone, it would have gone on quietly and steadily enough, after the fashion of its brother canal-horses; or, with a feeble driver, it would have submitted with a dignified grace, conscious of superior strength held back by an amiable disposition. But the brawny giant, who was yelling, shouting, whip-cracking, and war-dancing round its head, presented the appearance of a foeman; and the noble animal consequently started against the bank, and would have butted his tormentor, if it had not been held back by the checking power of the towing-rope. I am afraid that the mixture of the mariner and the carter, presented in the person of nearly every boatman, is not conducive to the proper understanding of the nature and character of horses.

We left the cheerful giant struggling with his enemy, and walked on sharply by the sides of the field-bordered stream. It was at this moment of our canal-existence that some demon whispered to Cuddy, 'Have a fowl for dinner.' We were never particularly fond of bacon, and we began to loathe eggs; for we had had them to eat at our breakfast, to drink in our coffee, boiled and fried for our dinner, and there was still the prospect of them before us for our next meal. For this reason, if for nothing else, we cultivated the idea of the fowl, and began to look

sharply about us for the prospect of realizing it. On we wandered for many miles by the side of the canal, the two barges following in our rear, glancing carefully right and left, without coming to any village or house, and without meeting any living thing. At last we reached a melancholy canal-side tavern; where nothing was to be got but a very thin and sour ale, and where we were given to understand, in answer to our anxious inquiries, that in those parts the common barn-fowl was a bird almost as scarce as the celebrated dodo.

On again we walked, with increasing appetites and decreasing hopes, until we came upon the village of Stoke Brewin, not far from the mouth of the celebrated Blisworth Canal tunnel, through which we were to pass on board the Stourport. Stoke Brewin is one small cottage street, with many out-lying barns;—a village that does not covet the patronage of strangers. The first inquiry we made respecting this phantom fowl, was addressed to an old woman standing at the door of a thatched hut.

'A vowl, measter?' she asked, in astonishment. 'What, a live vowl?'

'No, ma'am,' I said; 'a dead fowl, for cooking.'

'Dead or alive,' said Cuddy, who was more desperate.

'I'm sure I doan't know, measter,' returned the old woman; 'I doan't think onybody be havin' such a thing in Stoke. Ye can try of Must'r Edwards, at the corner.'

The corner alluded to was only a few yards off, and we made rapidly towards Mr Edwards's cottage. There was Mr Edwards, a fat man, standing in the low doorway, shaking his head at us as if we had been vagrant tramps, or he had never heard of such a bird as a fowl during the whole of his village existence. Turning our backs very quickly upon Mr Edwards, we strode along the short street until we came to the village butcher's, whose shop was a little larger than the Stourport cabin, and would not have contained much animal food if it had been filled to overflowing. It was as clean as the cage of a wild beast an hour after feeding-time. Not a scrap of anything was visible but a piece of suet the size of a nut, upon which a dozen ravenous flies and a blue-bottle had settled. This was a state of things that required explanation, and we proceeded through the shop and tapped at the half-curtained door-window of the back-parlour. This was at once opened, and we saw the master of the shop devouring part of the only leg of mutton upon the premises.

'Two shillings a pound for that leg of mutton,' said Cuddy, without the slightest hesitation.

'Noa,' said the man sulkily, seeming to understand the eccentric but very natural offer; 'there bean't too much 'ere fur my fam'ly, an' I wun't sell to ony mun.'

Further higgling was useless, and we left this mockery of a shop, with the highway-robber part of our character again strongly developed.

'I tell you what, Cuddy,' I said, 'a twenty-pound note in one's pocket at Stoke Brewin is not of so much use as a pipe-light. We'd better declare on the parish.'

A few more steps brought us to the canal bank, where we found another foodless tavern stocked with the thin, sour ale; and as the Stourport and its butty-barge had not yet arrived, we entered the pale of mild dissipation to drink ourselves into a better humour.

'I suppose Lundun be very dool, now?' inquired the young lady who served us with the beer.

'Dull!' almost shouted Cuddy, whose gallantry was quite gone; 'the dullest street in the dullest part of the City, at the dullest time of the day, and the dullest part of the year, is a bear-garden compared with Stoke Brewin!'

I started from the house upon hearing this speech, and was soon followed by Cuddy. We found our friendly Stourport lying in the lock ready to receive us; and by this time we understood the forethought and prudence displayed in victualling the boat at London with fifty pounds of beef, obtained from the great butcher who sacrificed a hundred beasts a-week.

The boatmen were preparing for the passage of the Blisworth tunnel (nearly two miles in length), an underground journey of an hour's duration. The horses were unhooked, and while standing in a group upon the towing-path, one of the child-drivers, a girl about six years of age, got in between them with a whip, driving them, like a young Amazon, right and left; utterly disregarding the frantic yells of a dozen boatmen, and nearly half a dozen family-boatmen's wives. At the mouth of the tunnel were a number of leggers, waiting to be employed; their charge being one shilling to leg the boat through. We engaged one of these labourers for our boat to divide the duty with one of our boatmen; while the youth went overland with the horse. A lantern was put at the head of the boat; the narrow boards, like tailors' sleeve-boards, were hooked on like projecting oars near the head; the two legging men took their places upon these slender platforms, lying upon their backs; and, with their feet placed

horizontally against the wall, they proceeded to shove us with measured tread through the long, dark tunnel.

The place felt delightfully cool, going in out of the full glare of a fierce noon-day sun; and this effect was increased by the dripping of water from the roof; and the noise caused by springs which broke in at various parts of the tunnel. The cooking on board the boats went on as usual, and our space being confined, and our air limited, we were regaled with several flavours springing from meat, amongst which the smell of hashed mutton certainly predominated. To beguile the tedium of the slow, dark journey—to amuse the leggers, whose work is fearfully hard, and acts upon the breath after the first quarter of a mile, and above all to avail themselves of the atmospheric effects of the tunnel, the boatmen at the tillers nearly all sing, and our vocalist was the captain's straw-haired son.

If any observer will take the trouble to examine the character of the songs that obtain the greatest popularity amongst men and women engaged in heavy and laborious employments, he will find that the ruling favourite is the plaintive ballad. Comic songs are hardly known. The main secret of the wide popularity of the ballad lies in the fact, that it generally contains a story, and is written in a measure that fits easily into a slow, drawling, breath-taking tune which all the lower orders know; and which, as far as I can find, has never been written or printed upon paper; but has been handed down from father or mother to son and daughter, from generation to generation, from the remotest times. The plots of these ballad stories are generally based upon the passion of love; love of the most hopeless and melancholy kind; and the suicide of the heroine, by drowning in a river, is a poetical occurrence as common as jealousy.

There may have been a dozen of these ballads chanted in the Blisworth tunnel at the same time; the wail of our straw-haired singer rising above the rest. They came upon our ears, mixed with the splashing of water, in drowsy cadences, and at long intervals, like the moaning of a maniac chained to a wall. The effect upon the mind was, in this dark passage, to create a wholesome belief in the existence of large masses of misery, and the utter nothingness of the things of the upper world.

We were apprised of the approach of another barge, by the strange figure of a boatman, who stood at the head with a light. It was necessary to leave off legging, for the boats to pass each other, and the leggers waited until the last moment when a concussion seemed

inevitable, and then sprang instantaneously, with singular dexterity, on to the sides of their boats, pulling their narrow platforms up immediately after them. The action of the light in front of our boat produced a very fantastic shadow of our recumbent boatman-legger upon the side wall of the tunnel. As his two legs stuck out horizontally from the edge of the legging-board, treading, one over the other, against the wall, they threw a shadow of two arms, which seemed to be held by a thin old man—another shadow of the same substance—bent nearly double at the stomach, who worked them over and over, as if turning two great mangle-handles with both hands at the same time.

Out of the tunnel, we were again haunted by the idea of a phantom fowl. On one side was a fine old granary, that might have been in Holland over a dyke, with cranes and horses, making some show of life; and on the other side were the thatched roofs of another feeble village. We ventured over the bridge, grasping our despicable money in our hands, and found a small, ancient, lopsided shop, which had, probably, heard in its time the tramp of Cromwell's soldiers, and had seen the face of the grim Protector himself; over its window was a square stone let into the wall, bearing the date of Anno Domini sixteen hundred and twelve. This, too, was a venerable abode of stagnant commerce. We asked for some butter, but this could not be granted to us without an old man being consulted in the back-parlour, and after some little delay, we were told that we could have one quarter of a pound, and no more; the regular consumption of the village, and the exact nicety of the supply, not allowing any very wide margin for hungry strangers.

The common fowl being unknown in this village, we returned direct to our boat, with our very scanty, but welcome purchases, and comforted ourselves with another tea. Milk—our first milk for two days—had been got, in the mean time, by one of the boatmen; and although it had little but its freshness to recommend it, having been well skimmed (Oh, the deluding country!), we settled down too happy to get anything like milk, to be very fastidious or discontented.

On we still glided, gently and silently, through broad, deep valleys; past the fringed edges of woods; past distant towns and churches amongst the hills and trees; past clumps of haystacks and farmhouse barns, lying deep below us in the distant meadows; and past lofty stone halls and broad mansions, where the slender deer gambolled close to the open doorways, and the broad, flower-bordered flights of steps.

While we were openly expressing our admiration of the prospect, which we might with justice have done every hour from Brentford up to the present time, we had an opportunity of forming an idea of a young boatman's taste in female beauty and country houses.

'That's a nice gal,' said our straw-haired young man, who was engaged at the tiller; and who drew our attention to a young woman driving a horse along the towing-path. She was dressed in a short-waisted, short-skirted, blue cotton frock, a pair of laced-up, heavy boots—a little less heavy than a boatman's boot—and her bonnet was a quilted cowl that hung in flaps upon her shoulders, and formed a tunnel in front, at the dark end of which was her half-hidden face.

To do her justice, she was clean and not coarse; she was youthful, and may have been lovely in the young boatman's eyes.

'You know her, you young dog!' both Cuddy and myself shouted to the straw-haired youth.

'She's the nicest gal on the canal,' returned our young boatman, evasively.

'Who is she?' we asked.

'That's her feyther,' he said. 'He owns that barge.'

Many boats had passed us, from time to time, belonging to small proprietors; which, without being strictly family boats, in the most deplorable sense of the term, were worked by members of the same family, as in the case of this father and daughter. One barge that passed us was a bridal barge; the proprietor-captain having that day entered upon the marriage state; and the funnel was ornamented with a bunch of white ribbons. The boatman never loses an opportunity for a little extra decoration; and our own Stourport, in honour of our visit, displayed a couple of small, highly-coloured tin pictures of flags, pinned with ribbon-streamers to our cabin funnel.

'Now,' the straw-haired young man had previously said, 'we're coomin' to the finest house on the canal.'

We looked out sharply to see the boatman's notion of the finest house; having already floated by many park-residences that we thought could scarcely be equalled, much less surpassed. It was as we expected. The finest house in the young boatman's eyes, was a long, flat, small, county-gaol looking building; very brazen and vulgar in appearance; built with several-coloured bricks, and standing in the middle of the only low meadow-land we had passed for some time. Its owner was a man who had made money in the whalebone trade (all honour to his ability and industry), and his whim was to have his chief doorway bordered with small whale's teeth; and

to build a boat-house upon the canal-bank, the entrance to which was under two large whale's teeth.

One noble mansion that we passed—very unlike the whalebone dealer's palace of retirement—seemed to stand upon the summit of a mountain of rich, dense trees. It was the home of one of the largest shareholders in the Canal Company; and our young boatman told us stories of alarming deputations of distressed bargemen waiting upon the owner to solicit relief, when frozen out by the ice, which sometimes closes the canals for weeks. The boatmen, even now, were beginning to speculate upon the probable mildness or severity of the approaching winter—a dreaded season, when canal-life becomes nothing but days and nights of exposure to drifting sleet, keen winds, and heavy snow, or cold soaking rain.

Not far from Braunston in Northamptonshire (the head of the Grand Junction Canal), we came upon a small boatman's village. It was the only place we had seen on our journey where the people on the land seemed to belong to the people on the water; where everybody knew everybody, and seemed glad to see everybody, and where there was some provision made for a boatman's requirements—to say nothing of his hungry friends and visitors.

This boatman's village consisted only of a few houses, all crowded round a lock and a bridge. There was a boatman's bootmaker's, from the recesses of whose workshop came a most deafening clinking of hammers closing rivets up, showing clearly the metallic character of the article produced. There was a boatman's tailor's and hosier's, with many pairs of the bright blue thick worsted stockings shining through the small window, and fustian trousers hanging up outside the door, dancing in the slight breeze. Women were leaning over garden-rails in little front-gardens on the towing-path, talking to boatmen; while other women in barges were coming out of cabin doorways to join in the conversation, followed by children, who appeared one after the other, as the first got out of the way of the second, and the second of the third, like the figures that come through an archway on the top of the automaton toy-clocks. One precocious young boatman, aged eight years, dressed in the most approved style, with jacket-waistcoat, trousers, and cap, was attending to a large horse, and superintending the progress of his father's barge through the lock-gates.

Inquiries were being made on land and water respecting journeys, families, relations, cargoes, provisions, and persons passed on the road; while Captain Randle emerged from the Stourport cabin, and

asked two women standing at the door of the tailor's when he might expect the new plush waistcoat they had got in hand. Close to the lock-gates was a long low-roofed tavern, grocer's and butcher's, all in one, kept by a female relation of our commander. We left the barge in a body along with the cheerful giant and two of the butty-boat crew, to try the strength and flavour of the tavern's best ale. We entered a long room, with a very low ceiling, old diamond-paned, leaden-framed windows, containing seats, an enormous kitchen-range, clean deal kitchen-tables, and a tall clock in a mahogany case like a small wardrobe. Through a door at the end was seen the grocery department, communicating with, and terminating in, the butcher's shop. This passage formed such a tempting vista of food that we could not delay a moment, and, leaving the boatmen to drink their ale, we rushed through, and immediately purchased several pounds of beefsteak. We returned to the Stourport, rich in the prospect of a good supper (without bacon and eggs), and were more contented than we had been for some hours.

We glided on through more valleys, lighted by a golden moon that shone brightly upon the slopes of yellow corn. Captain Randle took his place once more at the tiller, still in his shirt sleeves, and we observed an unusual glow upon his face, and a strange jaunty appearance about his cap. The straw-haired young man, in walking to the other end of the boat, along the tarpaulin's back-bone—a task, at any time, almost equal to tight-rope dancing—displayed a little more hesitation than usual, and a little less certainty of footing. It soon became evident that the ale at the boatman's village tavern had caused Captain Randle and his son to feel an agreeable elevation of spirits—especially the captain.

'Take care, captain,' I said; 'take care, or you'll fall into the canal.'

The captain did not immediately reply; but smiled gradually all over his face, closing one eye, half closing the other, and still swaying very loosely and easily to and fro.

''Av' I made you coomfor'ble, Must' Oll'?'

'You have behaved to us,' I said, 'like a father.' A remark in which Cuddy cordially joined.

'Bless you, William,' returned the captain, 'I'll do all I can fur you.'

Captain Randle happened to direct his attention at this moment to the moon, which shone full in his face, making it glow like a large red apple. Some shadow of an old song, containing a scrap of

classical learning, must have come across the poetical side of the captain's character at that moment; for he turned to me, jerking his head on one side, and pointing to the great luminary over his shoulder with a motion of his thumb, and said in a tone of quiet admiration: 'Bright Phœbe—Must' Oll'!—bright Phœbe!'

After we had fully enjoyed this sudden and unexpected outburst of the captain's poetical fancy or memory, Cuddy suggested the immediate preparation of supper; and expressed a wish that it should consist of steak and onions. This dish, coarse and vulgar as it sounds, is a secret favourite of all men, from peers to peasants, and derives an additional charm from the fact, that according to the settled rules of good society, it can only be indulged in in silent solitude; in inaccessible garrets, hermits' caves, or on the middle of Salisbury Plain.

No sooner was Cuddy's wish made known, than the captain resigned the tiller to his son, and plunged into the small cabin to prepare a meal. The elaborate process of cooking took a long time; but it came to an end at last, and we were gratified by Captain Randle's announcement that supper was ready, this time dished up in the cabin. We descended to find the small place lighted up with a bright, fierce, white-heat fire, that roared up the funnel. Like the devoted Shadrach and Abednego, we entered the fiery furnace. Captain Randle withdrew to take his place again at the tiller, and we sat down to indulge in our chosen meal. Cuddy sat upon the edge of the bed: I sat upon the cabin bench, within a foot of the savage glare of the stove. We had scarcely served out our respective portions, when Cuddy complained of a sense of fulness in his head, and I looked towards the small doorway, and saw it nearly closed up with Captain Randle's short, fat legs. There was no taming the fire, the heat must have been above anything ever borne by puddlers at an iron-works, and I felt with Cuddy strong symptoms of approaching apoplexy. In less than another minute Shadrach and Abednego gave in, and rushed from the fiery furnace like a pair of frightened salamanders, through Captain Randle's legs into the grateful, open air, once more under the glimmer of the harvest moon. The remainder of our feast was handed to us upon the poop.

Soon after this we reached the gauging-house at Braunston, where the Grand Junction Canal begins; and we took leave of our butty-boat and the cheerful giant very cordially, their destination being along a branch to Stratford-on-Avon.

We glided on to the Warwickshire canals, and passed another night in dreamy contests with locks. In the morning we entered the

highly fashionable town of Leamington, in our shirt-sleeves, performing a toilet, open to the observation of every gay lounger and taker of the waters. Luckily for us the hour was four in the morning, and the part of the town which we passed through might have been the commonest quarter of Hoxton, for any signs there were of the fashionable dwellings and the fashionable existence of this highly favourite English Spa. There was a row of small, shabby houses upon the canal bank; a policeman in the London uniform, who looked at us for a few moments in speechless wonder, and then disappeared down a narrow street; a carrying depôt, where we rang up a man, swung out a large crane, tore open the tarpaulin, and landed a hogshead of sugar, which had harboured wasps, to our great annoyance, for the last two days. We then glided slowly and silently upon our journey.

On we went, round the distant outskirts of the old city of Warwick; past more parks; up more lock-staircases; along a tree-bordered level; under more old red-bricked bridges; within sight of ancient country-houses with old crumbling walls inlaid with timber, once perhaps palaces, but now descended to farms, under whose old pointed roofs William Shakespeare may have drunk and feasted; or over whose broad acres that unscrupulous dramatist may have shot game without a license; past black, smoke-grimed, town-stamped boys, angling in the canal; past groups of ill-favoured, smoking, half-drunken men-youths—a mixture of the factory-hand, the dog-fancier, and the fighting-man; within sight of high viaducts, over which fly the hard-breathing engines—and clattering trains which have passed and repassed us on each side a hundred times during our slow journey; past a coal-dust-looking towing path, and under a sky of smoke; past tall chimneys and dingy gas-works; down another staircase of black locks, opened by a poor, active, grimy girl-child not more than ten years of age; past groups of demon-looking men who grin at us with white teeth, from coal-heaps, and the white, roaring mouths of furnaces; past backs of myriad-windowed factories, whose glass is broken, and under whose walls lie green, sickly pools of stagnant water; past a dozen grimy boys with large set jaws and shrunken arms, and legs, bathing amongst the floating dead dogs and factory scum of the inky canal; past all this and more, and we leave the romance and beauty of our three days' journey far, in idea, behind us, to glide to our final destination under the overhanging sheds of our Company's carrying wharf, in the very heart of the town of Birmingham.

Thus ended our canal journey. We shook hands with Captain

Randle, the straw-haired young man, and the two able-bodied boatmen, and went our way, leaving our puzzled commander under the mystery of our unexplained presence, taking away much ourselves that will be to us as a dream in after years.

CASTLES IN THE SEA.

IT is many years ago—perhaps more than I care to name—since I first saw that amphibious, dripping, flopping performance at the Polytechnic Institution, which was intended to enlighten the visitors upon the manners and customs of divers and mermaids. I had the honour of being introduced to the principal performer. I remember the show-diver as well as if it was only yesterday: a middle-aged, moody man, who presented the appearance of a sulky actor heartily tired of his monotonous work, or a worn-out, jaded pedestrian, who had got about half-way through a thousand miles in a thousand successive hours. As he sat upon a short stool in a dark corner of the building, between the periods of his immersions, I felt that he was brooding over the uselessness of his life, and my young heart offered him its unsophisticated sympathy.

'How would you like to be pitted agen an electrical eel?' he asked.

'Not at all, sir,' I answered.

'Very well, then,' he returned, 'that's what they're doing with me. They're advertising me agen that brute at the Adelaide Gallery.'

'Indeed, sir,' I said.

'I don't like it,' he continued, 'and I wish I could get out of it.'

Many months after this I visited the same place again; and yet I found him sitting on his stool, as if he had never moved from the moment I had left him. I came this time with a party of youths from the academy where I was being educated, headed by our master, who taught us science amongst the 'extras,' and lectured us on certain days in public places, like the Polytechnic, under some arrangement which he had made with the proprietors. I saw my friend the diver come forward in a curious, puffy dress, with his head done up in a goggle-eyed metal helmet, like a giant in the pantomime. When he

rolled slowly and clumsily over the edge of the pond-basin into the water, like an unwieldy fish, there were many of the children who thought he was a bogie, and especially the boy who stood next to me, whom I tried to comfort by telling him that I knew the performer.

After the usual pennies had been thrown into the pond, and the diver had brought them up above the surface, and had tapped them on the top of his helmet, like an intelligent whale that had just learnt some juggling trick with coins, and was rather proud of it, our master took us aside, and began the lecture of the afternoon upon diving and diving-bells.

He told us how Aristotle had mentioned divers' kettles, and Lord Bacon divers' bells, and how the first known use was made of them by two Greeks at Toledo, in 1538, before the court of Charles the Fifth and ten thousand persons. He told us how the first idea was taken from a drinking glass immersed in a basin, and how the diving-dress was no more wonderful than the diving-bell, being supplied in the same manner with air through a tube. . He told us many other things of the same kind, which we took very little notice of at the time, being more interested in the wet swimming of the live diver than in any dry histories of the invention. We forgot them all long before the picture of the goggle-eyed, floating bogie in the pond had faded from our minds, and found them, when we grew older, in the Penny Cyclopædia.

I seized an opportunity, on this occasion, to slink away from my companions, behind the scenes (which, in this case, were garden pumps and electrical machines), and have a few moments' conversation with my friend the diver.

'Here you are agen, young 'un,' he said, as soon as he saw me; 'does it rain outside, as usual?'

'No, sir,' I answered; 'it's quite a fine day.'

'Oh, is it?' he replied; 'it's always wet with me, that's all I know.'

'I dare say, sir,' I answered.

'He's been pitchin' it into you pretty strong about me, ain't he?' asked the diver, alluding to my schoolmaster's lecture.

'Yes,' I said, 'he told us when you were invented.'

'Look here,' he returned, bending towards me in a confidential manner, 'I don't mind telling you; that greasy pond ain't the sea, mind that.'

'Indeed, sir,' I said.

'No,' he continued; 'I don't say any more. This here ain't divin', and that 'ere ain't the sea.'

I was summoned away, with the other boys, immediately after this mysterious communication, and I kept my secret. The desire to see a real diver strengthened with years, to give place, at last, to a desire to go down in a real diving-bell. The last words of the sham-diver were always in my ears; the form of the show diving-box was always in my eye; my reading seemed to carry me among pearl-fisheries, ship-raising, engineering operations, and places where divers and diving were always mentioned, until, upon growing out of the bondage of youth and academies into the freedom of manhood and the world, I lived for no other purpose than to descend in a sea diving-bell.

I have a theory, founded on experience, that what a man has steadily set his mind upon doing, he is sure to do. He may have to wait some years before the opportunity arrives, but if his mind remain fixed in the same direction, that opportunity will assuredly come.

The theatre of my diving-bell experiment grew upon me by degrees: it was the Admiralty pier-works off Dover. It must have been ten or twelve years ago, when I saw the first signs of that work on the south coast, which has now resulted in a projecting pier-arm of firm masonry stretching half a mile towards France into the stormy Channel sea, and which in twenty years more, perhaps, will be finished as a breakwater and a harbour of refuge. Sometimes the workmen leave their chains, their scaffoldings, and their blocks of stone, on a calm summer's evening, to come back and find that a storm in the night has swept away many costly months of hard, patient labour.

It was at the farthest end of this half-mile roadway into the Channel (thanks to the kind exertions of my friend Mr Smiles of the South Eastern Railway, Mr Wey, the station-master at Dover, and Mr Lee, the contractor), that I was allowed to make my first acquaintance with the bottom of the sea.

I arrived at the works one sultry afternoon in summer, and was conducted, at once, down a wet muddy lane of iron tramway, between what appeared to be solid blocks of masonry, raised on each side, like the walls of some fortification. These were square granite boxes, made to a certain thickness of stone, and filled with a concrete mixture of sea-sand, pebbles, and lime. This composition, which takes several months to ripen or harden, is used from motives of economy, and when the boxes are fit for use, they are piled one upon another, and form the roadway into the sea. They are marked with a number,

a date, and a price—the latter being three pounds sterling—which partly show the progress and cost of the work. Near the sea end of this lane, standing upon one side, under the heavy overhanging scaffolding, and between the concrete blocks, was a small wooden hut, not unlike a fisherman's hut in shape, but presenting the appearance of a rude early store in Australia for the sale of boots, coats, and Guernsey shirts. A large old cracked lantern was among the apparent stock in trade; but seven-league boots, such as are worn by men who go down the sewers, formed the staple. Most of these boots were hanging up against the wall of the hut, like specimens of some well-greased black and unknown beast; the great nails in the heavy sole grinning like a hundred teeth. One pair were lying in a bandy-legged posture on a heap of rubbish at the door of the hut, looking like the limbs of a fierce horse-soldier, whose body had been blown away in battle.

This was the haunt of the mermen stonemasons, where the dry clothes of earth were exchanged for the soddened, pickled, salt-stiffened, clothes of the sea; and here I, as an amateur merman, was disguised, so that I might have deceived my own mother as to my identity.

It appeared that I had undertaken to do something which, if not very desperate, was very rare. No 'amateur,' as I was called, had ever been down in a bell during the whole twelve years the works had been in progress. Princes of the blood, I was told, had exhibited a desire to see something of the lower merman-life, and had been courteously but firmly refused. I thought that princes of as little blood as possible were the best persons to descend in diving-bells, because of the determination of that vital fluid to the head. Any way, the hour's dip to the bottom of the sea that I had asked Mr Lee, the contractor, to give orders for me to receive, was a luxury, apart from its rarity, that would add ten pounds to the cost of the pier.

I put on a blue Jersey fisherman's shirt, a pair of long, dark, rough, gray leg-bags—I cannot call them stockings—which made me look as if I were made up at that extreme to perform the part of a man-monkey; and after this I drew on a pair of loose brown frieze trousers. At this point I felt very apoplectic and puffy, and experienced a difficulty in stooping, which compelled me to call for assistance in getting into my waterproof seven-league boots. When this defensive toilet, this human fortification, was completed with a water-proof sou'-wester cap, I stood up a perfect merman, allowing for the dash of the amateur which I have before alluded to. My attempts at walking were heavy, dignified, and slow. There was no springiness, no dancing-

master elasticity, about me. My frail, but once active body, was like a mummy encased in many solid folds; and at every step I took I felt a resisting weight, as if I were walking through a thick bog.

A few paces out of the hut, and up the lane towards the sea, and I found myself among my fellow-mermen. Some were trudging towards the shore, having finished their day's work, while others were sitting on the sea-washed stone steps, which formed the termination of the pier-work, as far as it had reached, waiting for the rising of the bell which was to take them down below. They were all dressed very nearly in the same style as myself, except that my clothes had the proper amateur quality of being perfectly new.

Beyond this wet, slimy, iron-bound pyramid of steps, stretching some little distance further into the sea, was a heavy and solid scaffolding, reaching far above our heads, and supported upon strong piles more than one-half in the water, and with the other part out.

These piles, which cost about fifty pounds each, and which are often washed away in a storm, like straws, are strongly shod with iron. The part of them which appears immediately above the water is hung with rich brown sea-weed, tipped with a deep border of green moss above. Standing upon some of the stone blocks which have already begun to peep above the surface of the water within this framework, were several of my fellow-mermen, who looked like Arctic voyagers among the ice.

At last my diving-bell (which was one of six on the works, four employed and two unemployed) pushed its slightly convexed iron head above the waves, as it was drawn up by several firm chains, that were worked by windlass carriages on the scaffolding above. Slowly it rose, like a square, rusty iron column, being dragged, like a tooth, out of the sea, until its lower edge broke away from its suction of the water, and it looked nothing but a huge, dripping weight. When it had reached some three feet above the surface, a boat rowed underneath it, and then a seven-league boot, followed by another seven-league boot, and again by two more seven-league boots, dropped slowly into the boat: looking, in connection with the body of the diving-bell from which they came, like the legs of a tortoise, which that animal sometimes condescends to put out. The illusion was instantly destroyed by seeing the two mermen, who had been at work in the bell, following their legs, and dropping into the boat, to be rowed towards the wet and slimy pyramid of steps.

They had been down for the second five hours' period of their two daily dips (their day's work under water being about ten hours), and

they looked muddy, wet, heavy, and tired, and flushed in the face with a reddish-olive brown. They go to work in couples at daybreak, and their wages are a little higher than they would get on land, being about one hundred pounds a-year.

The diving-bells that are used at these works seem to be the ordinary engineering bells, or boxes, first employed by Mr Smeaton in repairing the foundations of Hexham Bridge in 1779, and afterwards in 1788, when he was engaged in constructing Ramsgate Harbour. The air, in this instance, is pumped down a conger-eel-looking tube from the scaffolding above; another tube runs up to the same machine, containing an endless chain, by which anything can be drawn into the bell while it is under water; another tube is placed in the same position, through which the diver below can signal to those above to shift the bell from place to place; finally, the whole structure is suspended by strong chains fastened to nutted rings in the top of the bell. The tubes are elastic, and prevented from closing by a metal framework which runs up the inside.

I dropped clumsily down the pyramid of steps towards my boat, putting my heavy boots in the water that dashed over the stone, and my hands in slimy, blanched sea-weed, that had clung to the masonry, and looked like maccaroni. In stormy weather I was told the mermen are sometimes washed off the steps; but as I descended in what was considered fine weather, I was merely washed on them.

A few minutes, with a few bounding pulls of the mermen's special waterman, and I found myself under the dripping dome of my allotted diving-bell. Seizing a large iron ring which hung from the roof of the bell, I drew myself up into the chamber, placed my feet upon a muddy narrow board that went across from side to side and rested upon two small ledges, and seated myself upon another board, similarly supported, that went across one end of the bell, like a seat in a four-wheeled cab. My companion merman—a regular diver, who had directed my movements—followed me, and placed himself on the opposite side. The boat glided away, and we were left suspended over the water.

Our apartment had something of the bathing-machine about it; something of the condemned cell in Newgate; something of the coal-mine; and something of Robinson Crusoe's hut. It was about four feet and a-half high, four feet broad, and six feet long. Its walls were of cast-iron, about three inches thick, and its roof was slightly concave from the interior, containing six thick circular bull's-eye windows, about the size of tea-saucers, which, being covered outside

with four crossed and recrossed bars of thin iron as a protection from falling stones, presented the appearance of open-worked tartlets. On one side of the bell were hanging a heavy pick-axe, a thick shovel, a crowbar, a hammer, a billhook—all of solid make—and a bundle of dirty tow that looked like a doll. On the other side-wall of the bell was a short length of iron sausage work, reminding me very forcibly of Jack Shepherd in the strongest cell of Newgate, Baron Trenck in prison, or the lowest dungeon of the castle keep. This chain, for chain it was, was carried to be attached to a strong nutted ring in the roof of the bell, dropping into the water with a hook at its other end; which hook, when fastened to the ring at the top of every stone block that had been lowered by machinery to the bottom of the sea, would raise or move the stone by the simple raising or moving of the bell. This, in substance, was all the heavy work that was performed with the diving-bell machinery; the divers going down to attach and detach the chains—to place the blocks by directing the motions of the bell through signals given to the men above—and to dig out and level the foundations amongst the sea-anemones at the base.

We are let down, almost imperceptibly, by two men at the windlass machinery. As two fundamental principles in the management of diving-bells are, that they shall descend so that the four sides of their lower edge may touch the water on a level and simultaneously, and that the downward journey through the water shall be gradual and slow, any rapid paying-out of the lowering chains would be instant death to those in the bell, by filling it with water. This accident is provided against by a checking 'crab,' of complicated structure, but of simple, self-acting operation, which, the moment it is required, immediately comes into use.

By degrees, the square patch of thick milky fluid beneath our feet appears to rise towards us, and we are made aware of the bell having bitten the sea by a flopping, sucking noise, and the swelling up of the water to the narrow plank across the centre, near the bottom, on which we rest our seven-league boots. At this moment I become conscious of the measured beat of the watchful air-forcing pump, which sounds like the bumping of a heavy footstep in a moderate-sized house, two floors overhead; it is followed by a gentle snorting, like the respirations of a horse, the struggle of the air through the valve at the bottom of the conger-eel-looking tube. This valve is in the centre of the roof of the diving-bell, and cannot be interfered with by the men in the cell. If the bumping of the pump ceases, or the snorting is no longer heard, it is the duty of the diver to pull the

raising signal, as the supply of life is no longer coming in, and five or six minutes may exhaust the existing stock of air.

Our destination is sixty feet below the surface, or twice the depth of the street seen from the top of an ordinary house; and very slowly we proceed to reach it. The thick water below us is now stationary, and we have no guide by which to measure our progress except the different gradations of light. I am first made aware of the whole bell being under water by having my attention drawn by my fellow-merman, who wears a cap, and looks like Robinson Crusoe, to a few pinches of sand that are washed about on the top of the bull's-eye windows. There is a calm silence, only broken by the flapping of a chain against the outside of the bell; the glittering sunlight, toned down as it has been by the thick glass, immediately changes to a bright green twilight; and the water casts off its milky thickness, and looks like green lamp-oil. This green colour was caused by the yellow sand still mixing with the blue water, as we were not far enough out from the land to get into the deep blue sea. At this moment I felt a sharp pain shooting through my head, which, scientifically speaking, was caused by the pressure of the condensed air in the bell, but which, popularly explained, to use the words of an old writer on the subject, was like having a couple of sharp quills thrust forcibly into each ear.

'Rinse 'em out with a little sea-water,' said Robinson Crusoe, who sat opposite to me, and whose face became more swarthy every foot we sank; 'it did me good when I first went down, some two year ago.'

I followed Robinson Crusoe's advice, paddled in the water between my legs, and poked my wet fore-fingers into my ears; but I cannot recommend the remedy as a perfect cure.

As we got a few feet lower (we sank about two feet a minute) the twilight deepened, and looking upward through the green bull's-eyes into the sea above us, it reminded me of watching a large space through a very small window that was covered with an impenetrable fog. Robinson Crusoe now began to provide for contingencies, by hauling in a candle with the endless chain. When it came at last through the water at the bottom of the bell—a messenger of light from above—it was a small composite dip, that did not seem much injured by its passage down the tube.

A few feet deeper, and the water became clearer—more like glass, and less like green lamp-oil—while the pain in my ears went off to a great extent, as Robinson had predicted it would. The twilight in

the bell-chamber deepened, and the water beneath us became even more clear, until we at length sighted our promised land—the bottom of the sea. The water being calm we had no occasion to light our candle (a light being a very common necessity), and we saw the lumps of chalk and flint lying side by side, like atoms that were magnified in a large microscope. The sea was as clear as some spirit thrice refined, and it swayed to and fro over its stony bed, like a pond of liquid quicksilver.

Another foot lower, and we slipped off our muddy seats, to stand fairly at the bottom of the sea.

Here Robinson very kindly went through a variety of performances, with the view of enlightening me as to the manners and customs of mermen-stonemasons while at work in building under the sea. He took the loose plank upon which I had been sitting, and placed it against the other plank upon which he had been sitting, in a horizontal, but upright position; he then reached a couple of wedges from a small ledge at the side, with which he made this structure firm, until it was turned into a perfect trough. He then took the pickaxe, and dug out a few stones at the bottom of the sea, which he shovelled into this trough, and then we stood upon the lower centre plank, while he gave the sign to those above to move us.

'Now,' he said, pulling the signal handle, which was like a syringe handle, a preconcerted number of times, 'we'll go over the mud-box.'

In a few seconds, with a slight roar as we left the bottom, we found ourselves rising slowly, like a very heavy balloon. The chalk and flint, after shaking about in the liquid glassy microscope for some little time, grew, by degrees, more misty, and, at last, disappeared.

'Now,' said Robinson, giving another preconcerted number of pulls at the signal handle, 'we'll hold hard;' and in a few seconds the bell was motionless.

'Now,' said Robinson, acting as before, except with regard to the number of pulls, 'we'll go to France!' and in a few seconds more, we were moving in a forward direction, away from the English coast. A few paces brought us to the spot where Crusoe knew the mud-box to be, and another series of pulls caused the bell to stop, and assume a downward direction. Casting my eyes in the water, I soon saw the dim outlines of an oblong shape, which gradually developed into a long open iron coffin, with heavy chains stretched tightly across its surface, and secured in the middle with a large iron ring. A few

more seconds of descent, during which this chest of water seemed to rise slowly towards us, and I found that it was full of flint and chalk. The trough in our bell was soon knocked to pieces, by taking out the side wedges, and the rubbish which it contained was swept down into the mud-box beneath. This box, when full, is attached to chains communicating with the machinery above, and is hauled up to any position that the work may require. As a rule, it is drawn up full on the Ramsgate-side of the pier, and emptied on the Folkestone side, as a protective embankment against the constant and partial washing of the sea.

These operations, with the block-raising and block-placing before alluded to, constitute the chief work of Robinson Crusoe and all his mermen mates. Occasionally, to save time, excursions are made, with the protection of the diving helmet, under the edge of the bell, out into the deep sea. The air is then supplied to the labourer under water, from the chamber of the bell, by means of a tube; and he looks, as he walks upon the flinty, uneven pathway, in heavily weighted clogs, to keep him steady and to keep him down, like some curious half-human monster, employed in smoking a gigantic hookah, the bowl of which is the bell, and the pipe of which is the elastic communicating tube. 'This here is divin',' as my old friend at the Polytechnic would have said, 'and this is the sea.'

Robinson, having put the bell through all the paces of which it is capable, lifting and dropping, backwards and forwards, and right and left, at last gives the signal—according to my desire—that we shall be raised once more to the upper world; and five men, as I am informed, now work the windlass which took two men to let us safely down.*

We rise, even more slowly and imperceptibly than we descended, because of the pressing weight of water above our heads; the light gradually changes from the black twilight of the bottom, through the green fog of the centre, up to the yellow sunlight higher still. The water over the bull's-eye windows becomes thinner and thinner, until it dashes backwards and forwards, like molten silver. The face of Robinson (who still sits opposite to me, the mud trough having been broken up and once more distributed as the two end seats) participates in all the changes of light, until it passes from a dark shadow to a bright, open, copper tea-kettle countenance. A thin white mist, or steam, has floated between us all through the upward journey, which

* The writer has not only to thank these men, but the superintendents of the works, for their courtesy and attention on the occasion of his visit.

the learned tell us, somewhat obscurely, is generated by the water having overcome some portion of the air, in consequence of a slight tilting of the bell while we were at the bottom. No practical merman, or landman, can give any common-sense explanation of the mysterious vapour.

The water got thicker and thicker, as we drew near the surface, until it assumed the appearance of a thin white paint; and all the way up my ears were musical with a cracking, buzzing noise, as if a couple of bees had taken possession of my brain, and were striving to converse with each other across the passages.

At last I saw the silvery water fall off from the bull's-eyes, and in a few minutes our wet glistening iron chamber released its hold upon the sea. The fresh air rushed upward, tingling in my head, like a sniff of smelling salts; the boat came under us once more, containing another merman to take my place, provided with a tin bottle of tea (the chief refreshment the divers are allowed to carry down), and after wishing Robinson good day, I went on shore amongst a gang of mermen, who were still sitting patiently on the pyramid of dripping steps, awaiting the arrival of the slow and heavy carriages that were to take them to their building at the bottom of the ocean.

RIGHT THROUGH THE POST.

OME time in the would-be merry month of May of this present year (1859), I was transformed into a letter—a highly-privileged letter—thanks to my friend, Mr Page, the Inspector-General of Mails.

I was sent to the post in the hands of a boy—a boy who had often posted my letters, and who now posted me. In the regular course of things I should have gone to the nearest office—a grocer's shop—where I should have reposed, for a time, within hearing of the grinding of a steam coffee-mill, the bumping of sugar-packets upon the counter, and within the fragrant influence of the pounded mocha. This was, however, prevented by another boy, who met my carrier just as he was dallying with his charge, having twice put me into the hole devoted to the inland and colonial mails without relinquishing his hold, and having twice withdrawn me in playful hesitation.

'Don't go a-chuckin' the letter in there,' said the other boy.

'Why not?' asked my boy.

'Put 'em in a lamp-post broke short off,' replied the other boy.

The two set off 'up the road' for one of the pillar letter-boxes. Here much climbing, overing, and rough inspection of the novel office took place, and it was full ten minutes before I was dropped in. I felt as if I was sinking into the bowels of the earth, and I was much relieved when I found I had reached the bottom.

My companions were pretty numerous, but they were nearly all business letters. True, my pillar-box was in a business neighbourhood, not far from the chief office; but that was not alone sufficient to account for this fact. Although there are nearly twelve hundred of these useful traps set in different parts of the metropolis, to catch as many as possible of the five hundred and twenty-three millions of letters that flew last year, as thick as locusts, all over the land, there is a certain class of letters that never go into anything but a 'regular' post-office, and probably never will. Any lady who could post a love-letter in one of the pillar-boxes must be an extremely unconventional, bold, and decided person, rather difficult to deal with harmoniously in the married state.

For this and other reasons my companions were full-sized, blue-wove, well-directed commercial letters, most of them announcing the approaching appearance of 'our Mr Binks,' with well-assorted samples, in some expectant country town, and some of them conveying to some unsuspecting manufacturer the earliest intelligence of a heavy bad debt.

After we had rested together very peaceably for about an hour, the door of our temporary prison-house was opened by a scarlet postman. He looked in as a boy looks into a bird-trap which he has set in a field, or as a climbing urchin looks into a nest half full of eggs in the hollow of a tree. We were taken out without much ceremony or delay, and thrust into a bag, and in about ten minutes' time we found ourselves within the great inland sorting-office of the General Post-office.

The Post-office presents almost the only example of a Government trading establishment, conducted, perhaps, better than it could be conducted under any possible combination of private enterprise, and producing a large yearly profit that exhibits a steady increase. The profit, after paying expenses, amounted in 1858 to more than a million and a quarter sterling, which was paid, as usual, into the Exchequer. This money being a tax upon letter-writers and letter-receivers for the benefit of those who neither write nor receive letters,

and a tax which presses most heavily, no doubt, on trade, it is a question whether it might not be judiciously expended in improving the postal system, or in reducing the postal rates. The Chancellor of the Exchequer, however, is not willing to give up such a large portion of the annual public income, and the Post-master-General is therefore encouraged to make the balance as large as he possibly can. The above profit was derived from receiving and delivering 523 millions of letters, in the proportion of 428 millions to England, 44 millions to Ireland, and 51 millions to Scotland; from the foreign and colonial letters (an unimportant item); and from the commission on issuing nearly twelve and three-quarters of millions sterling in money orders for the United Kingdom. This latter department, which, in its operations, much resembles banking, is not a portion of the postal system, properly so called, and is conducted in a distinct building in St Martin's-le-Grand.

Nearly one-fourth of the whole 523 millions of letters in 1858 were delivered in London and the suburban districts; and, counting those also which were despatched, nearly one half passed through the London chief office. The number of newspapers delivered in the United Kingdom during the same year, was seventy-one millions, and the number of book packets seven millions and a-quarter. One letter in every three hundred was returned to the writers, owing to the failure in the attempts to deliver them; and one newspaper in every hundred and twenty-four newspapers, for the same reason; making, in the first case, nearly one million and three-quarters of letters during the year, and in the second case, nearly six hundred thousand newspapers.

The receiving-houses and post-offices provided for this enormous circulation, now number eleven thousand and a-quarter throughout the United Kingdom, and the pillar letter-boxes, which are gradually advancing in use and popularity, and are at present confined to the metropolis, have now reached one thousand one hundred and sixty-eight.

From the moment that a letter leaves the hand of the sender, and falls into the box, it becomes the property of the Post-office, for purposes of delivery, and cannot be withdrawn. If it contains any hasty phrase, and any bitterness of tone that the writer regrets; if its weight is considered greater than the head or heads upon its surface will carry; or if any important particular is thought to be omitted in its address, it must, nevertheless, go unaltered through all the allotted stages of its course.

The Great Inland Sorting-office, in which I found myself, in my character of a letter, is not unlike Exeter Hall, furnished with long rows of tables, desks, and shelves, at which are seated a number of active, earnest-looking, time-begrudging beings, every one engaged as if legerdemain had been his sole occupation from the cradle, and as if he had a certain task to perform, with only another hour to live. Taskmasters are passing to and fro, directing and inspecting the work, but the chief taskmaster of all is a large clear-faced clock, which watches the hurrying crowd with the calm steady look of a sphinx, and which is glanced at in its turn by some of the labourers, as the conductor of an orchestra is glanced at by timid performers.

I was at once turned out of the bag, along with my companions, on to the top of a large table amongst a heap of other letters—a fortuitous concourse of atoms—mixed and entangled as only a mound of letters can be entangled and mixed. Some fifty men immediately attacked this mound, like eager bone-pickers at a virgin dust-heap, or rather, considering its playing-card shape and appearance, like maniac gamblers at a scramble when the police are knocking at the outer gate.

All this activity has no other object than to 'face' the heap, to put those troublesome letters on their backs, which are obstinately lying on their faces, and to turn those other letters round upon their legs which are at that moment standing on their heads. As fast as a pack which makes a full handful is scratched into order, it is transferred to another table, where the letters undergo another process of stamping.

This process has to obliterate the postage heads, so that they can never be taken off and used again, and also to stamp the letter with a circular impression, containing the date, and the name of London—the town from which the letter is about to be despatched. This task is confided to a nimble-fingered gentleman, who seems inclined to back himself against any steam-engine under the roof, past, present, or to come. Placing a number of letters before him in an upright position, with the postage-head in the upper right corner, he strokes them down gently but rapidly, one by one, under his right hand, which holds the stamping die, and comes down with unerring precision and bewildering rapidity full upon the label. A hundred heads are damaged in a minute by this skilful operator, who requires a new die every evening; and the only partial break that occurs in his labour is when a letter either wants a head, or contains it in the lower left-hand, instead of the upper right-hand corner. Dipping the

die on to the ink-brush, or stamping a paper at intervals, that stands at his side, to keep a rough record in twenties or fifties of the letters passing through the office for that night's mail, are eccentric diversions of the head-blotting duty, performed almost too quickly to strike the eye.

After I and my companions had suffered this ring-worm disfigurement, and also the similar disfigurement of the dating stamp, we were parcelled out to be sorted into the bags for the different leading towns, or into divisions for the re-sorting on the different lines of railway.

Those letters that are perfect in full payment and clear handwriting are sent to their final bag, or their temporary division, without further questioning or examination; but those corpulent documents, whose bodies have grown too big for their heads, or in whose cases two heads are officially considered to be better than one, are transferred to the weighing clerk; while those letters whose addresses are faintly conveyed in the yellowest of ink, the most cramped of cramped writings, of the most unknown of unknown tongues, are transferred to a table of officers, skilful in solving these passing dark problems, and known throughout the department as the 'blind men' of the Post-office.

The weighing clerk is an officer cultivated in sight and touch, whose eye can detect in an instant the letter that is attempting to pass on its journey at half-price, and whose finger, by merely gliding over the surface of the doubtful letters in the process of counting them, can at once assist and confirm the judgment of the sharp and experienced eye. Not one letter in a dozen, perhaps, that is overweight, requires weighing, and not one half of the suspected impostors are convicted and marked with the postal double payment fine.

The table of the 'blind men' is the calmest spot in the building. Theirs is no work of mere mechanical dexterity, that can be brought by constant practice to a dazzling rapidity of execution. It requires much searching in directories, much guessing, much mental effort, to solve most of the riddles in writing and spelling that come upon this table. The irregular combinations of the alphabet alone present a boundless field of variety to the ignorant and the persevering; and when the combination of Christian names and surnames, names of towns, and names of counties, as well as the forms of letters, and the parts of a letter's proper superscription, come to be added, arithmetic can hardly convey the result. It is to this table that all those riddle-

letters find their way, upon whose surface Islington is spelt and written 'East Linton;' and the late Iron Duke is addressed, long after his death, as the 'Duk hor wellerton, Ip ark corner, London, englent, or hulswear.' The blind men are often called upon to decipher such directions as the following, conveyed in the most undecided of hand-writings:—

'To Mrs Slater to the Prince of wales in fits Roy place Kinteston London paid.' The blind men decide that this means the 'Prince of Wales' public-house, Fitzroy Place, Kentish Town; and their verdict is final.

Sometimes comic boys address their relatives in London in the rudest pictorial form, giving a good deal of trouble to the blind men. A picture of a garden and a street, with a fancy portrait of the person for whom the letter is intended, drawn outside the note by a not very artistic youth of seven years of age, is not calculated to ease the sorting labour of the General Post-office. Letters addressed to 'Mary Ann Street, Red Rive lane Luke St. next door to the ocean;' 'To No. 3 Cros bsbty Row For The Female with the Infant up Bromley Stairs;' 'Ann Poror at Mrs Winhursts No. 24 Next door to two to one;' 'Mikell Goodliff at St. Nouts Printis to a Shoo Makor Mis his name not known Mrs Cooper is grandmother to the Lad;' 'elixa clarck saxton hotel saintluord hon se;' and 'This fanke Taghe Warkitt ill Wise Comse Wile of Withe,' with many more like them have come, and are constantly coming under the notice of this branch of the sorting department.

The blind men feel an artistic pride in mastering every difficulty, although the difficulty is to be taken to the land's end for the small charge of a penny. Failing all attempts to make clear that which is never to be read in this world, the interior (after the proper forms have been observed) is, at last, looked into, only to present a larger and more enigmatical surface still. The only colourable explanation that can be given of the mystery, based upon the annual average of riddles which come before the blind men, is, that some Irish hop-picker, passing through London on his road to Kent, is anxious to communicate with a relative in some part of his native country.

The Sorting Office for newspapers and packets is upon an upper floor, and is reached by an endless staircase, worked by machinery, which revolves and ascends, like the spokes of the treading-mill. The business in this department is very similar to that below, except that the sorting proceeds more slowly, and the packets, while fewer, are much larger. The 'blind man' here is chiefly engaged with the

newspapers, whose moist addresses have either come off, or been partially torn; and his work, like that of the department, is the heaviest on Friday night, the great newspaper despatch night of the week. He employs himself a good deal in guessing the kind of newspaper which would probably go to certain individuals, when he finds himself with a number of addresses without papers, and a number of papers without addresses. No disappointment is so bitter to the country resident as to miss his weekly budget of news and reading when he comes down to breakfast on a Saturday morning, or to tear open the cover and find a Tory organ, which he hates, in place of the Whig organ, which he loves. The newspaper blind man performs his work as carefully as he can; and if he does make an occasional mistake in sending the wrong paper to the wrong man, his countrymen must forgive him when they know the difficulties with which he has to contend.

By a quarter past seven I have been duly sorted, and I am hurried, along with a crowd of letter companions, into a large box, which is then sealed with strong sealing-wax, and sent sliding down a smooth, shining, steep, inclined plane into the day-light, and on to the platform of the Post-office northern court-yard. Here we find a number of guards and porters ready to receive us, in company with many other bags, and many really dismal, but rather would-be gay-looking, vehicles, drawn up to convey us to our different railway stations. These are the Post-office vans, furnished and horsed by contract to the department for a payment of ten thousand pounds per annum, and forming the only existing link that binds the railway-governed Post-office of to-day to the mail-coach-governed Post-office of the past.

In shape, the Post-office van is like a prison van, in colour it is a mixture of dingy black and red, and in condition it is dreadfully shattered and work-worn. Something of the hearse also mingles in its composition, and something of the omnibus. Its stand, when off duty, is at the end of Bedford Row, Holborn, where it basks in the sun, within a maze of posts, against the dead wall, looking with its companions like a crooked line of Chelsea pensioners waiting for the doctor. They are occasionally used as night-houses of refuge by the Arabs of St Giles's, who have been known to ride in them asleep to meet the morning mails at one of the railway stations.

In one of these vehicles I was stuffed with my companions, feeling very much (as the man must have felt who was placed in charge of us) as if I had been convicted of felony at the Old Bailey, and was

going to a penal servitude of four years. Our destination was, however, Euston Square, and we were the first of some seventeen similar despatches, in some seventeen similar vans, that form an unbroken stream between St Martin's-le-Grand and the London and North-Western Railway terminus, every night from 7 P.M. to 8.30 P.M.

When we arrived, we were received by responsible Post-office clerks, passed through a special entrance made for us by the railway company in the side wall of the station, to save a few minutes of our valuable time, and deposited full in the front of our special train.

Our train was nearly all Post-office, and very little public. Those passengers who went by it had to pay a high tariff, and book their places some few days in advance. The train consisted of seven postal carriages and three passenger carriages (according to contract), all made up ready to start from 7 to 8.35 P.M. The passenger carriages were in front, the mail carriages behind, and the latter consisted of a sorting carriage and mail-bag van, or tender, for the Midland and East-Coast Mail; two sorting-offices and one tender for the North Mail (of which I was a part); and two other tenders employed for the intermediate mails. In two of the three sorting-offices in the train, the letters posted in London, or passing through London for the smaller towns on the line, and which have already undergone one divisional sortation at the Chief Office, are received, and again sorted for their final destination. In the third of the three sorting-offices in the train, the bags of cross-post letters from the towns arrived at on the road are received, sorted, and, in some cases, made up and re-despatched, without the train having had to submit to a moment's delay, or to slacken its even pace of five and forty miles an hour. This is the Railway Post-office—properly so called—and into this department of the train—being a privileged letter—I was freely permitted to go.

The Railway Post-office was an exceedingly comfortable, well-furnished business carriage, broad as the gauge of the railway would allow, and as long as an ordinary room. The door was in the centre, having on its right a large window hole, shut up with a wooden shutter, and extending across nearly one-half of the carriage. Sometimes the interior reminded me of a bagatelle-table, when I looked at the green cloth counters running along both ends, and nearly along the whole length of the back; sometimes it reminded me of a large laundry, when I looked at the full bags lying unopened upon the floor, and the many empty bags (marked with the names of towns) hanging on pegs from the half wall on the left of the entrance-door.

Sometimes the hundred pigeon-holes and shelves which covered the three sides of the carriage immediately over the three counters, suggested an elaborate mahogany kitchen-dresser, the spaces in which were being continually filled by maniac card-players, silently dealing out eternal, never-ending, ever-renewing packs of cards in a phantom game of whist.

As soon as the average speed of the train was attained, the bags on the floor were opened by the guard. Packets of letters, tied up with a string, were thrown upon the back counter, to be divided amongst the three sorting clerks (the whole postal part of the train employs fourteen clerks and six guards), dozens of newspapers, parcels, pill-boxes, sample-packets, thin cases of artificial flowers, rolls of music, and photographs done up in envelopes as large as tea-trays, were thrown upon the end counter at the head of the carriage; and the work began. Each man stood under a shaded globular lamp, shaking very much throughout his frame, and swaying to and fro like a circus-rider on his horse. The carriage is bright and glowing, and its speed is something between forty and fifty miles an hour. Letters are rapidly conveyed to the different pigeon-holes, sometimes high, sometimes low, sometimes on one side, and then on the other; sometimes with a little hesitation when the writing which tells the post-town is not very clear (the name of the county being placed on the letter is rather a hindrance to the sorters than otherwise); sometimes, with a circular wave of the hand, when the mind is in doubt, for a moment, where to deposit the letter; nearly always, more with regard to a sorting system peculiar to the sorter, than the names of the different towns which appear over the pigeon-holes. One clerk devotes himself to the registered letters, which have to be entered on a printed list; and he stands in a half-stooping posture, at a little distance from the counter, with a quill pen in one hand, and a small square board, on which is stretched the paper, clasped firmly in the other; jotting down the names and addresses in a touch-and-go style, which long practice has adapted to the motion of a flying, wabbling platform, that passes over a mile in a minute. The third clerk, preferring to be seated at his work, pulls out a swivel seat from under the counter that looks very much like a dark Westphalia ham.

After the guard has been busy, for a short time, at the head end of the carriage, seemingly in tossing the newspapers and packets about, like a potato-washer over a tub of potatoes, he takes another turn at the bags, and makes up the sealed mail for the first post-station. When he has tied and sealed the dirty white skin bag, which

contains the allowance of letters for one small town, and a score of smaller villages, he straps it up in a dark brown leather covering until it looks like a pedlar's pack, and then he proceeds to attach it to the external machinery of the carriage. He is an experienced guard, familiar with every river, bridge, and point, who knows, by the sound of the roaring and clattering train, at what moment to 'let down the net, and put out for delivery,' as the printed instructions phrase it. The shutter of the large single window-hole is pushed down in its groove, and a gust of cold night air, laden with the scent of earth, and grass, and trees, comes freshly into the hot and busy carriage. The guard looks out along the dark line of rising and falling hedges, and through the trees at the low horizon, for some expected signal light, and then proceeds to the door, which he pushes back in its side groove. Reaching out his arm round the window side of the carriage, he drags in an iron bar, that swings by several hinges, at the extremity of which he fastens the packed mail, now lying on the floor, by means of a spring, and casts it away from the carriage over the rails, where it drops and hangs suspended at right angles, like a heavy bait put out to catch fish. This operation completed, he returns to the open window, where he pushes down a mechanical arrangement, which forms a projecting receiving net, and which sounds, in its descent, as if the whole carriage were falling to pieces. After a few seconds' suspense, the bait appears to have taken; the carriage passes under several bags of letters, which are suspended from the postal station, and over a similar net, projecting from the station also; the machinery of the railway acts upon the machinery of the carriage; the one bag drops into the roadside net—or into a roadside ditch, as any one would suppose who merely observed the operation from the carriage; at the same instant, several bags come tumbling into the carriage net, as if from the moon. Before the guard has hauled them all in, and dragged up the net, and shut out the fresh night air once more, the whole train has shot half a mile beyond the place where the Railway Post-office has effected this advantageous exchange.

The guard instantly plunges head first amongst his new treasures, which he opens, and presents to the sorting clerks. Letters that have been brought by hand and cart from some quiet village in the heart of Hertfordshire, and whose destination is some quiet village in the heart of Kent, are now careering towards the north with the speed of the wind, to be sorted, made up, and sent back, along their proper arteries, at the next postal station. Local papers going to London to set an example to the metropolitan press; London papers sucked dry

by provincial politicians, and sent across the country to some fourth or fifth day's reader; letters from country grocers to their London merchants, which smell of tobacco, cheese, and tea; dead letters from the country post town, done up in a funeral black bag, and money-order communications encased in large coarse envelopes, the colour of golden orange; neat little pink notes from Lady Fusbos in the country to the Hon. Miss Busfos in town, one posted close upon the other, and the latter rendering the former null and void; letters from country lawyers about rents and land, addressed in that unmistakable clear hand which is recognized as the law clerk's with half a glance; letters from country drapers to that firm not far from Watling Street, stating that it will be utterly impossible to meet that bill which will fall due on the fourth of that month; letters from the indefatigable Mr Binks, the commercial traveller, enclosed in printed envelopes, addressed to 'the firm,' and containing long sheets of orders to a highly satisfactory amount; letters with narrow black borders, that show how death has distantly appeared to some household, and letters with broad black borders, that show how his dark shadow has fallen very near; letters with the whitest of envelopes, and the firmest of contents, which tell of something more cheerful than the grave; letters in brown and yellow envelopes, with equally solid contents, which convey some country auctioneer's card to view a property that is advertised for sale; letters that are warm and affectionate, free and easy, cold and dignified; letters where compliments are presented, where Sir gradually thaws into Dear sir, Dear sir into My dear sir, and so on through Tomkins, Henry, Harry, Hal, Old fellow, and Everlasting brick; letters that are registered in heaven, letters that are registered on earth, and letters that are registered in the other extreme—these, and many more whose contents could not be guessed by their exteriors, are amongst the treasures which our guard has hauled in by the way.

Other baits were hung out at different points of our journey, always with the same successful result; and after we got to Rugby the work became doubly heavy as far as Preston, and our three clerks were increased to six. Heavy bags, it is true, were taken out at places where we stopped, but bags that were equally heavy were generally taken in, and the labour was always being renewed from the point where it seemed to leave off. The sorting from Rugby became more fast and furious; the ventilation of the carriage became more doubtful, and the scent of the sealing-wax more strong; the dust increased in a very perceptible degree; the sorters became more fishy-eyed and worn out, especially as they approached Preston—the

town where they were to be relieved. The five thousand letters which each officer is bound to sort during one journey, whether it be long or short, were just finished by each individual as the signal whistle announced the entry into the not very sightly station of the old Lancashire town. I leaped off the end counter, where I had long been sorted, out of the way, in my character as a letter, and at once reassumed my character of a bed-seeking, coffee-drinking man. The idle apprentices who had been tossing restlessly upon their costly, luxurious, first-class couches throughout the night, might have looked with envy upon the group of industrious apprentices who had never found a moment of time from London to Preston that hung, in the slightest degree, heavily upon their hands. Another batch of industrious apprentices were waiting to fill the vacant places, and before the inexperienced traveller had ascertained where he was, the Railway Post-office and its adjuncts were again upon their way. Dozens of such offices were at the same moment flying all over the country—flying, as they began to fly some twenty years ago—as they have, one or other, never ceased to fly from that hour to this. They will never cease to fly to the end of time.

OUR POSTAL REFORMERS.

THE sudden retirement of Sir Rowland Hill from the practical management of the Post Office has filled most people with regret, and a desire to see a great public benefactor honourably rewarded. We are not niggardly to our heroes of the fire, famine, and slaughter type, and it is bad policy to put Jenner's statue in a lumber-room and to snub our greatest postmaster. The great department which was re-organized by Sir Rowland Hill, has grown more during the four-and-twenty years of his management than during the previous two centuries of its existence. Part of this growth is due to the establishment of railways; part of it to the increase of population—a set-off against the acknowledged evils of living in crowds—but more of it to that clear sight which saw the necessity of a new system, and that determined patience which first set it in motion, and then made it perfect in most of its details.*

* I am indebted for most of my facts to the nine Annual Reports of the Post Office, and other official documents.—J. H.

The British Post Office, as at present constituted, is a Government monopoly, conducted for the benefit of the public. It is the only important trading department of the State which yields a large annual profit applied to the expenses of Government. With few exceptions, it has an exclusive authority to convey letters within the United Kingdom. It is also required to convey newspapers, and it undertakes the conveyance and the remittance and guardianship of small sums of money; but it is only as regards letters that the office possesses any privilege, the other branches of its business being open to any persons who may choose to undertake them. In the United Kingdom the Lords of the Treasury have power, within limits prescribed by law, to fix the rates of postage; and the Postmaster-General has authority to determine the frequency and speed with which the mails shall be conveyed and letters delivered.

The British Post Office is a very old plant of slow and gradual growth, and it owes very little to royal and noble patrons. While profligate kings and greedy ministers have saddled it with enormous pensions, and useless or obstructive officers, it has been chiefly made as productive as it is by three working-men—an upholsterer, an actor, and a schoolmaster.

The postal service in this country began with special messengers, sent by public and private personages, and with common carriers, who travelled with pack-horses, in that thorny time when the wars of the Roses were in full activity. As these carriers went through their journeys without changing horses, their pace was very slow, and the blame was chiefly laid upon the badness of the roads. Their charges, however, were not high, for the Bristol corporation only paid a penny for the carriage of a letter to London; but it must be borne in mind that a penny then represented a far higher value than it does now. Government posts, that is, relays of horses and men, were not established until nearly two centuries later, though 'post-horses' had long been kept by innkeepers and private individuals for hire. James the First set on foot a post-office for the benefit of English merchants having trade abroad, but it was not until the reign of Charles the First that a post-office for inland letters was established. This postal arrangement covered a few main-roads and by-roads—chiefly the lines from London to Edinburgh, London to Chester and Holyhead, and London to Exeter and Plymouth, Oxford and Bristol, and Colchester and Norwich. The rates of postage were, of course, somewhat high, as the object of the Crown in establishing this letter-post was as much the formation of a profitable monopoly as the accommodation of the

public. Twopence was charged for the carriage of a single letter for any distance under eighty miles, fourpence up to a hundred and forty miles, sixpence for any longer distance in England, and eightpence to any place in Scotland. The post between London and Edinburgh was commanded to run thither and come back in six days—it now does the double journey in a day and night—and on one occasion the London office sent only a single letter. The prohibition which followed of the carrying of letters by persons other than those employed by the king's postmaster caused great dissatisfaction, and the subject was brought before a committee of the House of Commons. The utility of the institution, however, was too great to admit of its abandonment, and nothing was done except to put down a rival post-office started by the corporation of the City of London in 1649, when the amount of the revenue derived from the posts was £5000. From that time the trade of letter-carrying has been in the hands of Government.

In 1680, a Penny Post for the conveyance of letters and small parcels about London and its suburbs, was set up by Robert Murray, an upholsterer, who assigned his interest in it to William Dockwra. This was the first great postal reform, and it is thus spoken of by a contemporary writer:—

'The Penny Post Office is a late office at London only, whereby for one penny any letter or parcel, not exceeding one pound weight or ten pounds value, is most speedily and safely conveyed, to the great benefit of the City of London, and all the parts adjacent only within twelve miles round.' This was a London foot-post, like the present, with seven sorting-houses, between four and five hundred receiving-houses, and with four deliveries a day. Dockwra, in the face of much opposition, conducted his undertaking with such success for some years, that it excited the jealousy of Government. It was at last seized, on the ground that it was an infringement of the rights of the Crown, and it was not until some time after that a pension of two hundred a year was granted to him by way of compensation. This was the commencement of the London District Post, of which Dockwra was subsequently appointed comptroller, and which, up to 1854, existed as a separate department of the General Post Office. He was the first to stamp letters with the hour at which they left his office for delivery, and the first probably to see that combustibles and perishable materials were not conveyed in the form of letters and parcels. He was accused of forbidding the taking in of bandboxes, and of delaying physic sent by doctors, and so hazarding the lives of patients. In 1698, he was removed from his office on a charge of mismanagement,

which may or may not have been a conspiracy against him; and, in 1708, an attempt was made by Mr Povey to establish a halfpenny post in opposition to the official penny post; but this enterprise, like Dockwra's, was speedily suppressed by a lawsuit.

In 1710, during the reign of Queen Anne, the Post Offices of England, Ireland, and Scotland were brought by Act of Parliament under one management; and, in 1720, a great improvement was effected by Ralph Allen, who re-organized the 'cross-posts' under a contract, brought many neglected districts within the postal service, and realized more than half a million sterling by his ingenuity. He spent his money mainly in works of charity, and sat to Fielding for the portrait of Squire Allworthy in 'Tom Jones.' On his death in 1764, the 'cross-posts' were put under a manager, with a salary of three hundred pounds a year; and the annual profits from this source at this time were about twenty thousand pounds, notwithstanding the loss to the revenue arising from illegal letter-carrying. The muddy, lazy post-boys, striding their lean hack-steeds, and struggling through side lanes that were half ditch, half forest, would act as private messengers, and do a little postal business on their own account, in spite of many whippings, many imprisonments, and more warnings. The service was much interfered with by too generous gentry, 'who did give much money to the riders, whereby they were very subject to get in liquor, which stopes the males;' and by old broken-down or apprentice highwaymen, who were not fit for more dangerous work. Robbing the mail in those days was looked upon as mere child's play, requiring neither courage nor experience, a something about equal to stealing linen off a hedge, or fish out of a pond. It was not only on country main-roads and in country by-lanes that this crime was committed with comparative impunity, but in the thoroughfares of the City. At more than one of the narrow outlets from London it was customary to draw a string across from wall to wall, over which the ambling post-boy would stumble, losing his bags in the fall, and having to return to the head office to report the robbery. The annual expense attending these robberies—to say nothing of the loss of property—was, of course, very great, and in 1783 it was at least four thousand pounds.

The great reform, that speedily altered this unsatisfactory state of things, and gave security as well as increased speed to the national correspondence, was one designed and carried out by John Palmer, the lessee and manager of the Bath Theatre, in 1784, which may be shortly described as a system of trunk-lines and feeders. He con-

nected letter-carrying with the mail-coach service, to the great improvement of both; and post-boys on horseback, hobbling along at the rate of three or four miles an hour, and inviting or conniving at robberies of the mail-bags, were abolished on all the coach-lines. This plan was vehemently opposed by the officers of the Post Office, but Mr Pitt saw its merits, and it was adopted by Parliament. Mr Palmer was appointed Comptroller-General of the Post Office to carry out his scheme, at a salary of fifteen hundred pounds a year, and a commission on all receipts above a certain amount. The speed of the mails was at once increased to six miles an hour, and subsequently to nine or ten miles. The correspondence and revenue increased, and as they continued to advance steadily for many years afterwards, Mr Palmer was discharged abruptly in 1792. Three thousand pounds a year—a large sum, but one much below the emoluments to which he was entitled under his agreement—were paid to him; but he was not so easily satisfied, and, after a struggle of twenty-one years, he got a Parliamentary grant of fifty thousand pounds. His chief opponents were men who were abusing the privilege of 'franking'—the official and Parliamentary right of sending letters free by post—and who granted covers to their friends, or even sold them through agents, which gave a right of passage to everything, from a note to a mattress. This franking system began with the post-office charter in 1660, and was only got rid of in 1840 on the establishment of the penny postage.

The year of Mr Palmer's discharge, 1792, was distinguished by the opening of the first Money Order Office. This office was originally managed by a few of the Post Office clerks for their own profit, but in 1838 it became a recognized branch of the establishment.

About the year 1818, Mr Macadam's improved road-making began to be of great service to the Post Office, by enabling the mails to be much accelerated; and the opening of the line between Liverpool and Manchester in 1830, inaugurated the great system of railway letter-carrying. Since then, the railways and the Post Office, two noble twins, have grown up together, the progress and statistics of the one being as remarkable as the progress and statistics of the other. Following close upon this important change, in the early part of 1837, came the last and greatest reform of the postal service. In that year Mr Rowland Hill broached his great plan of inland penny postage, and met with some support, but with far more opposition and ridicule. He published a pamphlet, showing nearly every step in his laborious calculation, which proved that a uniform penny rate was at once both just and practicable; and he did more than this, he forced the House

of Commons to consider his scheme. After a full investigation by a Royal Commission and a select committee—in the latter of which the late Mr Wallace, M.P. for Greenock, was honourably prominent—the great penny plan was grudgingly adopted by the Legislature in the session of 1839, and carried into effect, under the superintendence of Mr Rowland Hill, with many breaks and hindrances, in the beginning of 1840. No further proof can be needed that the plan had been carefully worked out by Mr Hill in all its details, than the fact that it was the production of an obscure man, and yet was so soon accepted and acted upon.

The accession of Mr Hill—now Sir Rowland Hill, K.C.B.—marked the death of what we may call the wax and wafer age, and the birth of the gum and envelope age. As mails increased in speed and number, the formal habit of letter-writing gave place to something far more rapid and unceremonious. One by one, mechanical improvements were encouraged to appear—adhesive labels, with their ingenious perforated divisional lines; envelopes, first ungummed and then gummed; the travelling post-office on railways—a carriage fitted up for clerks, where the operations of sorting and stamping are performed while the train is in motion; the exchanging apparatus, by which mail-bags are discharged from or gathered into the travelling post-office while going at full speed; and, finally, the pneumatic tube, at present laid down from St Martin's-le-Grand to Euston Square, by which the packages of letters and newspapers are blown from the chief office to the railway terminus.

The results of postal reform have exceeded Sir Rowland Hill's most sanguine expectations. When his pamphlet was published, the lowest general post rate was fourpence; and the old rate required to carry a letter from London to Reading or Chatham, is now more than sufficient for its conveyance to any part of Canada, India, or Australia. During the twenty years from 1815 to 1835 (inclusive) there was no increase whatever in the post office revenue, whether gross or net. What a contrast this forms with the rate of increase under the new system, which has been in operation for about an equal period. In the first year of penny postage, the letters more than doubled; every year has shown a considerable advance on the preceding year, and the first year's number is nearly quadrupled.

The revenue, of course, showed a large falling off at first—about a million in the gross and still more in the net revenue. Since then, however, both in its gross and net forms it has rapidly advanced, and it now even exceeds its former amount. A comparison of the year

1863 with 1838—the last complete year under the old system—shows that the number of chargeable letters has risen from seventy-six millions to six hundred and forty-two millions; and the revenue has risen, the gross from £2,346,000 to about £3,870,000, and the net from £1,660,000 to about £1,790,000. In this comparison of revenue, the mode of calculation in use before the adoption of penny postage has, of course, been retained, and the cost of the packets on the one hand, with the produce of impressed newspaper stamps on the other, have been excluded. The number of newspapers delivered in the year is now more than seventy-three millions, and the number of book-packets is more than fourteen millions. The number of returned letters—letters returned to the writers owing to failure in the attempts to deliver them—is more than two millions each year; and the undelivered newspapers and packets are about four hundred thousand. The dead letters, an accumulated mass, reach six hundred thousand. In the London district alone, the number of letters is now nearly double that which, before the adoption of penny postage, was delivered in the whole of the United Kingdom, London included.

The number of officers and servants of the department, including those in the colonies and agents in foreign countries, now reaches more than twenty-five thousand, divided into: one Postmaster-General—a ministerial and sometimes a purely ornamental officer; five secretaries, including the principal secretary—the post lately occupied by Sir Rowland Hill; twenty heads of departments, fourteen surveyors, eleven thousand and three hundred postmasters, sixteen hundred clerks, one hundred and seventy mail-guards and porters, twelve thousand letter-carriers and messengers, seven marine mail-officers, twenty-two postmasters, clerks, etc., in the Colonies, and seventy-three foreign agents. The average annual salary received by these officers amounts to about eighty pounds, while the five thousand officers of the Customs get one hundred and forty pounds, and the five thousand officers of the Inland Revenue one hundred and sixty pounds. The number of post offices now exceed eleven thousand, of which more than eight hundred are head offices; the road or pillar letter-boxes number nearly three thousand five hundred—making nearly fifteen thousand receptacles for letters in the United Kingdom, or more than ten thousand above those existing before the establishment of penny postage. The distance over which mails are now conveyed every day is nearly one hundred and sixty thousand miles.

While the revenue of the Post Office has thus more than recovered its former amount, the indirect benefit to the general revenue of the

country, arising from the greatly increased facilities afforded to commercial transactions, must be very large. This indirect benefit is partly manifested in the development of the money order system, under which, since the year 1839, the first year of its official existence, it has risen from a little over three hundred thousand pounds to sixteen millions and a half, or fifty-two fold. The unclaimed money orders are always carried to a fund to assist the officers of the department in insuring their lives. The organization thus so greatly improved and extended for postal purposes stands available for other objects, and, passing over minor matters, has already been applied with great and remarkable advantage to the new system of Savings' Banks.

The organic improvements in the postal service, which have been the work of Sir Rowland Hill during his twenty-four years' tenure of office, are worth enumerating. First came the large reduction in the rates of postage of all correspondence, whether inland, foreign, or colonial. Letters are now conveyed even from the Channel to the Shetland Islands at one-fourth of the charge previously levied on letters passing between post towns only a few miles apart. Then followed the adoption of charge by weight, which, by abolishing the charge for mere inclosures, largely extended the reduction of rates; the stamp arrangements, which have led to the almost universal prepayment of correspondence; the simplification of the mechanism and accounts of the department generally, by these and other means; the establishment of the book post—including in its operation all printed and much written matter—at very low rates, and its modified extension to our Colonies, and to many foreign countries; increased security in the transmission of valuable letters afforded, and temptation to the letter-carriers and others greatly diminished, by reducing the registration fee from one shilling to fourpence, by making registration of letters containing coin, as far as possible, compulsory, and by other means; a reduction to about one-third in the cost, including postage, of money orders, combined with a great extension and improvement of the system; more frequent and rapid communication between the metropolis and the larger provincial towns, and also between one provincial town and another; a vast extension of the rural distribution —many thousands of places, and probably some millions of inhabitants, having, for the first time, been included within the postal system. To these improvements have been added a great extension of free deliveries. Before the adoption of penny postage, many considerable towns, and portions of nearly all the larger towns, had either no de-

livery at all, or deliveries on condition of an extra charge. Now, ninety-four per cent. of all the letters carried are delivered free at their addresses.

A more prompt despatch of letters when posted, and a more prompt delivery on arrival; an improvement in the condition of the officers, by a reduction of Sunday work, with other important advantages; and greatly increased facilities for the transmission of foreign and colonial correspondence, by improved treaties with foreign countries, by a better arrangement of the packet service, by sorting on board, and other means, but chiefly by the mere force of example, complete a noble list of reforms.

The importance of the last reform, and the influence it has had on the whole civilized world, can hardly be overrated. There is scarcely a lonely island where any Robinson Crusoe could find shelter, which is now cut off from all postal communication. The weary digger in his hut, the worn soldier keeping guard in Indian ravines, the 'surplus' sempstresses who have sought a kinder land, and the mothers, brothers, and sisters left at home, have all cause to bless those postal reforms with which the name of Sir Rowland Hill will always be associated.

When a letter is now dropped into a pillar-box, or left in the little side-office of a grocer's or a druggist's, though it may have to go from pillar to bag, from bag to chief-office, from chief-office to van or pneumatic tube, from van or tube to railway, from railway to ship, from ship to railway again; once more from railway to ship, from ship to camel, and from camel to ship, there is very little doubt felt about its safe delivery.

The men who have charge of that letter—poor and unimportant as it may be, except to those who wrote it and those who are to receive it, are known never to desert their trust, but to guard it even at the risk of their lives. The punctuality of the mail-packets—ninety-six in number—often furnishes a remarkable proof of the conscientious character of the service. Four mails were despatched from various points, one from Sydney, New South Wales, distant nearly thirteen thousand miles, on the 22nd September, 1862, another from Calcutta, distant eight thousand miles, on the 10th of October, another from Shanghai, distant upwards of eleven thousand miles, on the 19th of September, and another from Hong Kong, distant upwards of ten thousand miles, on the 27th of September. These mails were all due in London on the 13th of November at midnight, and they arrived one hour and ten minutes before that time. The mails for the

West Indies and Central America, despatched from Southampton on the 17th of September, were delivered at the Island of St Thomas, distant more than four thousand miles, at the precise moment at which they were due. On the same voyage the mails for Jamaica and Demerara, conveyed in each case by a separate branch packet, were delivered within a few minutes of the time at which they were due, while the mails for parts of Central America and for the Pacific were delivered at Colon, on the eastern coast of the Isthmus of Panama, distant five thousand four hundred miles, thirty minutes after time, the packet having been detained at sea that precise period by H.M.S. Orlando. The mails for Chili, after having been conveyed with others across the Isthmus of Panama, were delivered at Valparaiso, distant nearly nine thousand miles from Southampton, two hours before the time appointed.

The duty left by Sir Rowland Hill for his successor to perform is rather an onerous one. Admirably as the Post Office is now worked, there is ample room for further improvement, and the public will naturally expect more from new officers than from old ones. It must throw less labour on the public for the sake of economy, and the creation of a showy annual surplus. Life is short; we have all many things to learn, and have very little time to study postal districts. The most the Post Office can demand from the public is tolerably clear handwriting, a correct numbering of houses, and the re-naming of forty-nine out of fifty King-streets or Queen-streets. These are concessions which no good citizen would deny it. On the other hand, the public demand a large increase in the number of pillar letter-boxes —structures which cost little, either to build, maintain, or clean, and which ought to be as plentiful as lamp-posts. The abolition of the rule forbidding the posting of manuscripts and newspapers in these boxes, and of that other rule which demands fourpence for a letter a fraction above the twopenny weight—a rule that seems to be antagonistic to the spirit of penny-postage,—would be a further improvement. The same may be said of any change which would save the public from a large amount of thinking.

While the Post Office shows a large profit, as it does, we are entitled to ask for these and other reforms, as this profit is as much a tax as the duty on railways and hackney carriages. The one is a tax upon the free circulation of thought and information; the other is a tax upon the free circulation of individuals. Until every penny of the Post Office profits—properly so called—is spent upon the improvement of the postal service, these profits exist as a tax upon letter-

writers, or a tax upon those who write many letters for the benefit of those who write few. The answer that no one feels the pressure of this tax, because the money is drawn in such infinitesimal quantities, is often used in apologies for many other bad taxes. The principle of partial taxation is radically unsound, whether it deals with pence, shillings, or pounds; and a tax upon the free circulation of thought must also be radically bad, even if it pressed with equal force upon every class of the community.

A MORNING CALL ON A GREAT PERSONAGE.

WHEN, some years ago, the first clearance was made in that marshy ship-building yard at Millwall, and the plan was laid down of that huge vessel which bore the name of the Great Eastern up to Tuesday, the third of November, eighteen hundred and fifty-seven, but which on that day, from the lips of a young lady named Hope, took the title of the Leviathan *—there, on the borders of that river, which continually bears upon its bosom the full stream of commerce which flows unceasingly to and from the ever-restless, hungering city—in the face of Deptford dock-yard, with all its old naval associations—within sight of those long webs of masts and rigging which mark the outline of the crowded docks—within sight of those old, weather-beaten warrior vessels, strong in a strength that we hope we shall want no more—within sight of those Hospital cupolas, beneath which repose the maimed and aged defenders of wooden walls, the representatives of a past time, was implanted the first stake of a great experiment, which, if it proves successful, will undoubtedly inaugurate a new era in the naval world. We may bid farewell to tar and bunkum, to barks, brigs, schooners, sloops, and frigates, and welcome huge machines that savour more of the engineer's factory than the shipbuilder's yard. And thou, my unsteady friend of Ratcliffe Highway, with those peculiar trousers, so broad and loose about the feet, and so tight and narrow round the waist, with that short blue jacket, and those small, low shoes, with that black necktie slung so carelessly round the bronzed open neck, and that shining cap stuck so wonderfully at the back of thy head—am I to part with thee, with all thy dear characteristic ways, thy

* The name has been again changed to the 'Great Eastern.'

tavern broils, thy extemporaneous hornpipes, thy rollickings upon dangerous elevations on the tops of cabs, driven by reckless, joyous cabmen, thy utter disregard of money, and thy love for rum, tobacco, swearing, Eastern music halls, comic songs, arguments with helpless policemen, and lodgings somewhere about Stepney, or Saint George's in the East? Am I to see thee fade slowly from my familiarized, if not enraptured gaze—fade, as I have seen the stage-coachman fade before thee—and give place to a respectable, well-conducted, but utterly lifeless something—a mixture of the stoker and the supercargo?

I am a passive instrument in the hands of fate, and I may add in the hands of science; and on the morning of that drizzling, cheerless November day, heedless, even ignorant of the importance of the occasion at which I am about to assist, I follow the stream of expectant sight-seers, and find myself, in due time, upon the dismal island—the Isle of Dogs. Over the trembling wooden bridge that divides us from London, properly so-called, and on through the mist and steamy exhalations, and along the sides of the green ditches that skirt the roadway, up the crowded, noisy, bustling street, hung with a few dingy flags, and I approach the long, silent monster, stretching along above the house-tops—above the tree-tops—and standing in impressive calmness, like some huge cathedral. As I enter Mr Scott Russell's yard, I contrast the calm of the great vessel—the sullen silence of inert matter—with the eager bustle and hurry of the two thousand workpeople who are employed to assist in the launch.

I am in the empire of mud. I am assisting at a festival in which mud forms the prevailing element. I am surrounded by muddy navigators, muddy engineers, muddy policemen, muddy clerks of works, muddy, reckless ladies, muddy directors, muddy secretaries; and I become muddy myself. Mud—soft clayey mud—is the distinguishing feature in this Island of dirty Dogs. Not to be muddy is to argue yourself unknown, and to be confounded with the unimportant rank and file of visitors, who number, in and around the yard, and upon the river, and the opposite coast, full one hundred thousand souls.

The birthplace of the Leviathan presents rather a chaotic picture. Lying about in the clay, like plums in a pudding, are large screws, crowbars, broken hammers, bits of iron, cogwheels, sheets of metal, scaffold poles and blocks of timber, big spike-nails, felled trees, iron girders—pieces of cable, chain, pulleys, and boilers, into which people creep out of the rain.

There is the hum of many voices upon land, and the shouts from

the river, the music and ringing of the bells on the opposite shore, the hissing of steam, and the clatter of the engines. Careworn officials pass me, who have been hard and anxiously at work for many weeks, and who have been up all night. They look at me with a sorry welcome, wondering how I and so many persons can take an interest in what appears to them an irksome task. There are groups of stout, powerful navvies, Lancashire and Yorkshire, who are not occupied to-day in the work of the yard, and different classes of lounging work-people, some in blue jackets, and some in clayey brown shirts, and some in fustian suits, and very greasy caps. These are the men who have been working for so many weary months upon the great ship's shell; and they are there with their wives and their children—babies in arms—to witness the success or failure of their handiwork. Some of the women have brought their husbands' dinners, and they wait, looking curiously at the arrangements around them, until the repast is finished upon a piece of old iron, or inside a boiler. Some of the dinner-bearers are not so fortunate in finding their husbands in the crowd at the exact moment when they want them, and they run about bewildered in the general din, bemoaning the fact that the dinner is getting cold. The sparrows seem to be aware that something is going on of far more interest to them than the gigantic launch, and they assemble in great number, chirruping for the crumbs that may fall from the poor man's table. One very clean, neat old widow, after some difficulty, finds her son, a very greasy, muddy lad, with a good deal of lampblack about his face. To the old lady's great concern he does not seem to care about his dinner, and she is sure that he must want something after being up all night about the yard. The lad has been stimulated by some fellow-workmen, with a large allowance of beer, and this, together with the exciting event of the day, has made him so indifferent to food, that the old lady, very unwillingly, is compelled to leave the carefully-prepared comforts to take their chance in the course of the afternoon. Such domestic events go on, no matter what great interests are hanging in the balance. Dinners were brought to workmen by careful wives and mothers at the building of the Tower of Babel, and why not at the launch of the Leviathan? The welfare of her greasy, muddy son, was of more moment to the clean, old, widowed mother, than the great, sullen carcase which one hundred thousand people were so anxious to see floating on the waters.

On all occasions of this kind you meet with a good deal of character, brought out by the surrounding circumstances. There is the practical man, bloated with all the traditions of the past, but a hope-

less blank as to the future; who would rather cling to the inventions and appliances that we have, than fly to others that he knows not of. He is, at the present time, a good representative of those men, laughed at now, who backed a Margate hoy against the first locomotive engine that ever ran on rails, and who considered the man who first proposed to light London with gas a dangerous lunatic of the Guy Fawkes' breed, against whom every man's hand ought to be turned who did not wish to see his home in flames, and his children calcined.

Such men as these were very plentiful on the morning of the third of November, standing in the centre of a little attentive group, and delivering such oracular phrases as, 'Wood, sir, never did it before, and it will never do it again!' confidently setting their opinions, the result of five minutes' hasty, superficial, and untrained examination, against the plans of men who have thought and dreamed of nothing else than the great work before them, day and night, for many weary years.

Then, there were fussy men—probably shareholders in the Company to the extent of one small share—who were taking out the value of their individual subscription in a minute examination of every part of the complex and powerful machinery, and who were begging the visitors to keep back, as an attendant clown clears the ring for a tumbler.

Then, there were important men of stately forms, clad in double-breasted coats and waistcoats, who awed you with authoritative glances like incarnate beadles. They must have been directors, or sworn friends of directors, for Board-room was written in every line of their important countenances.

Of more real importance in connection with the event of the day were those two muddy, anxious, ordinary working men, looking like a decent master carpenter, and his attendant foreman, whose minds and bodies were too much occupied to afford time or inclination for any pose plastique of official dignity. They were Mr Brunel, the engineer, and Mr Harrison,* the captain of the Leviathan: the former almost bent double with fatigue, and the latter with every particle of the salt-sea captain drawn out of him during his long residence in Mr Scott Russell's ship-building yard.

Then, there were fidgeting men, who tried to catch the eye of persons in high authority, upon the strength of having met them once or twice somewhere at dinner. You could hear such men saying to friends: 'I know Brown very intimately; very nice fellow, Brown;

* Both of these gentlemen are now dead.

if I could only get hold of Brown for half a second, he would put that matter right in an instant.' 'That matter' generally referred to a rebuff they had met with from a muddy policeman, who prevented them rushing into a position of imminent peril.

Then there were pretty little groups of elegantly dressed ladies, carefully escorted by an attentive cavalier through the wet, slippery clay, over splintered timbers, and across chains and cables, to some position supposed to be more than ordinarily interesting, for the purpose of exclaiming: 'La! Amelia, isn't it wonderful!'

Then there were adventurous spirits amongst the directors, who would get into positions of danger, to the great horror of their wives and daughters; and who seemed disposed to counsel the whole Board, with the Chairman at their head, to go down with their capital and their venture to a man.

The river, about two o'clock in the afternoon, presented the appearance of a solid mass of human beings outside the limits prescribed by the Leviathan authorities. Jolly young watermen were in charge of crews such as they had never seen since the first steamer was launched upon the Thames. There were coal-barges, lumpy Scotch and Hamburg steamers, Dutch galliots, skiffs and cutters, barks, schooners, and sloops, neat little Chelsea steamers, worn-looking Woolwich boats, ambitious Gravesend crafts, police barges, floating-engines, mooring barges, fishing-smacks, fruit vessels, light jaunty yachts, and grimy colliers from Sunderland. I think I see the little, dirty, naval drudge on board the Bounding Betsy, from Shields, looking up with awe and admiration at the great vessel which overshadows him, and wondering if he will ever be on board such a craft. There must be some charm in the sea for this poor lad, which our wisdom does not enable us to measure. His life seems hard enough: his berth is grimy; his hands and face are grimy; his food is grimy, for he crunches the coal-dust as he eats his pork and greens; his captain is grimy; the cook, who is also the chief mate, is grimy; and the two able seamen are grimy. He has to obey orders from every grimy mouth, and occasionally he gets a stout cuff from a grimy fist. He has little or no bed during the short grimy voyage, and his life is passed amidst coal-dust and water. Yet the lad is happy and cheerful; and if his old mother wishes to keep him on land, she must chain him up strongly to the cottage-door. I wonder whether the captain of the Leviathan was ever such a boy? I know many great captains who were.

A general spirit of reckless daring seems to animate the majority

of the visitors. They delight in insecure platforms; they crowd on small, frail house-tops; they come up in little cockle-boats, almost under the bows of the great ship. In the yard, they take up positions where the sudden snapping of a chain, or flying out, under severe pressure, of a few heavy rivets, would be fraught with consequences that they either have not dreamed of, or have made up their minds to brave. Many in that dense floating mass on the river and the opposite shore would not be sorry to experience the excitement of a great disaster, even at the imminent risk of their own lives. Others trust with wonderful faith to the prudence and wisdom of the presiding engineer, although they know that the sudden unchecked falling over or rushing down of such a mass into the water would, in all probability, swamp every boat upon the river in its immediate neighbourhood, and wash away the people on the opposite shore. Everything about the yard and the vessel is large, and rough, and strong; and many who contemplate these things become, in imagination, large, rough, and strong, likewise. If the feeblest visitor in the yard were suddenly asked to lift half-a-ton weight, or hold a chain against a tugging power of six horses, he would turn up his cuffs and try.

The mass that has to be launched, or pushed into the water, weighs twelve thousand tons. It is as high as an ordinary church, and exactly the length of the Art Treasures' building at Manchester; or, to convey the dimensions more approximately to the mind of a Londoner, we may tell him that the length, breadth, and height of the Leviathan corresponds very nearly to the length, breadth, and height of Great George Street, Westminster. This measures the mere shell of the vessel; for, when it is finished and has its crew and cargo on board for voyaging, it will be more than double its present weight. The problem to solve, then, out of the pen-and-ink abstraction, and the undisturbed solitude of a civil engineer's office, and in the broad light of day, before a hundred thousand eager, trusting, sceptical, anxious spectators, is, to let down an iron hull gradually into the water, six hundred and eighty feet (or nearly one-eighth of a mile) long, eighty-three feet broad, sixty feet high, and weighing nearly twelve thousand tons. This is the task that Mr Brunel has undertaken. He stands in a very different position from that of a great military or naval commander on a grand emergency: they employ great forces to destroy; he employs them to preserve. On one side he has the capital of the Company, to the extent of a million, under his charge; and on the other, many thousands of visitors to shield from injury or death. This task, also, Mr Brunel has undertaken.

The army that he employs to carry out his orders is rude and ill-organized, about two thousand in number, unaccustomed to work in unison, and, strong and hearty as they look, practically useless without the aid of machinery. That aid the engineer has availed himself of very largely. Two steam-engines, stationed at each end of the yard, opposite the head and stern of the vessel, operate by drawing in chains working round barges moored in the river, and acting to draw the vessel down its launching-ways. Four other barges are moored in the river, working drawing tackle equal in force to two hundred and fifty tons. These, with the hydraulic pumps used on the land side to press the vessel forward, are the forces employed to overcome the reluctance of the Leviathan to move. There it stands, like a sulky monster, firm in its two cradles, at the top of its launching ways, which slope down gently to the water's edge, well covered with lamp-black and grease. The machinery used to keep the great vessel back, and prevent its plunging too hastily into its new element, injuring itself and every one near it, is two enormous cables, the links of which are as thick as a man's thigh; rolled round drums as high as a small house, and governed by four windlasses, two to each drum. This, with the two thousand navvies and workmen, standing like terriers at rat-holes, waiting for orders, is the power placed in Mr Brunel's hands to use for one object—the launch of the Leviathan, twelve thousand tons weight—on the third of November, eighteen hundred and fifty-seven, at one o'clock in the day.

At that hour, everything being in readiness, the operation commences, and for some few minutes no result is visible. All at once a loud, united shout is heard, and those at the stern-cable see the head of the vessel slide some little distance down the ways. In an instant afterwards—before the shout has died away—the huge mass quivers from head to foot, and the stern part follows the lead of the head with a grinding crash and sullen roar, and in two seconds, before the dazzled eyes of the people have scarcely realized the fact, the mighty vessel has slipped six feet down her ways, like a boy down a slide. The stern cable drum savagely pays out its gigantic chain, and one of the windlasses revolves with frightful rapidity, hurling a dozen poor men who are unprepared for the sudden movement, like acrobats, into the air, and in another moment they are lying bleeding, senseless, and writhing on the ground. The men at the other windlass—a mere handful—see that everything depends upon their redoubled efforts, and a dozen strong, earnest arms, aided by machinery, pull up the retreating monster—the twelve thousand tons—with a sudden check,

and a quiver felt throughout its enormous length and breadth, as if it was the most tottering horse, or the most shaky cab, that ever came out upon a night-stand. The engines stop, and a rush takes place towards the injured men; and while they are being carried to the hospital in the arms of their fellow-workmen—two of them to die, and baptize the Leviathan in blood—the shouts from the river and the opposite shore came wafted on the wind, from men who little know how much they are indebted to that handful of resolute men at the stern windlass.

After the lapse of one hour, the work is recommenced, but the surly monster refuses to move. One of the drawing-chains snaps under extreme tension, and the hydraulic pressure-pump gets out of order. At half-past two o'clock the launch of the Leviathan, as far as the public are concerned, is finally closed.

As I join the reluctant crowd, and file slowly out of the wet, muddy yard into the outer chaos of drunken sailors, overflowing beer-shops, streaming houses, misty marshes, laden omnibuses, splashed broughams, independent cabs, and close, drizzling rain, I feel that, as the experiment of the day has demonstrated the power to propel and the power to check, the first important stage in the development of the great enterprise may be considered as secure.

GREAT EASTERN POSTSCRIPT.

WITHIN the last twenty years there has arisen a new profession. It hangs upon the skirts of literature without being literature. It requires a strong chest, a power of doing without sleep, of sleeping upon shelves, stones, clay, or hurdles, an observant eye, an even temper, and a good memory. It is the profession of seeing and describing everything in the character of 'our own correspondent.'

The men who follow it with love and determination are not cold, calculating men; they are men who live only in action, who feed only upon excitement. They belong to the same race who have wandered over parched deserts, who have sailed out into unknown seas, who have thrown themselves amongst howling savages, who have sat over powder mines to gather information, and to spread it, when gathered, before an ever-ravenous public. The risks they run

are measured in thousands of pounds sterling by careful actuaries; the pay they receive is liberal, but no more in proportion to this risk than the twopence halfpenny (or one quarter of a day) which the common soldier is paid, when he storms a battery, or throws himself upon a hundred bayonets. Their enterprise is undoubted: their political economy is utterly rotten. A crown of glory is always ready for their hot and impulsive heads:—a foolscap garnished with fevers, broken bones, corns, bunions, dirt, and chilblains.

As a dabbler in this eccentric profession, I speak from some experience. I began with a giddy race on a puffy locomotive, I may end with being blown out of the mouth of a cannon to describe the sensations. I have done many wild things in my time, and I am still alive to some that are wilder. My last essay was in the experimental trip of the Great Eastern, and I have returned in the full possession of all my limbs, if not in the full possession of all my faculties.

Before these pages can possibly be laid before the readers of All the Year Round,* there will not be one of those readers unfamiliar with almost every incident of the voyage. As my purpose, however, is strictly to record what *I saw with my own eyes on board the ship*, and not what was brought to me by well-meaning friends, or well-instructed messengers, it is possible that my Great Eastern Postscript may not be wholly uninteresting, or without value.

The first thing that puzzled me in the voyage was the refusal of the directors to permit my joining the vessel at her moorings in the river. I was to be tolerated at the Nore, but not at Greenwich. I had about twenty companions who were also anxious to sail in the good ship for a special public purpose; but that purpose, it was decided by the Board, did not begin until she got to Sheerness. Some of the most energetic amongst 'our own correspondents' believed that the Thames, the start, and the course down the river, were things, above all others, to be seen and to be recorded, and some rowed after the floating island in cockle-shell boats and barges, while others took deceptive conveyances overland, and found themselves in Kentish hop-fields, listening to the flutter of birds and the familiar crack of the September gun, when they should have been floating on the river, and thinking of nothing but water, tar, and Rule Britannia. A select party attended to directorial instructions to deliver themselves at Stroud about four o'clock in the afternoon of Wednesday, the 7th of September, and were taken on board the small theatre at Chatham in the course of the night, instead of the great ship Leviathan, off the

* This was written September 12, 1859.

mouth of the Medway. Their vessel had come to an anchor at Purfleet about two o'clock in the day, and the four speculative spirits who got out at the Erith station, but took their chance of boarding the vessel, had every reason to be satisfied with their irregular proceeding. I was one of the number.

The voyage from a muddy pier at Erith to the companion-ladder of the great ship was one of some difficulty. A leaky boat had to be prepared with row-locks which were cut out of the broom-handle belonging to a Kentish Arab, or mud-lark, on the beach; and the passengers were expected not only to pay a high price for the voyage, but to bale out their crazy craft with a rusty pint pot. One half of the course was performed in this manner, and the other half in a powder-barge, which came up and charitably rescued us. In a quarter of an hour more we were under the sides of the great ship, while our credentials were sent up for examination, and passed through a black hole, like a trick trap in a pantomime. This was one of the cargo portholes, we were given to understand; and it was comforting to see that emblem of law and order, a London policeman, standing in charge of this ship entrance. Though blue, he did not look naval; nor did the ship from this point of view; it had the appearance, to my thinking, of an immense floating House of Correction.

At last we were admitted, and I found myself standing, for the first time, on the deck of the floating island.

I had learnt before I started, from certain statistical records of the vessel, that her length over all was nearly seven hundred feet; that her length of beam was eighty-three feet; that the length over her paddle-boxes was one hundred and twenty feet; and that her height from the bottom to the top of the upper deck iron was fifty-eight feet; but all this gave me a very faint idea of her size. My first impression, on walking about her decks, now they were in all the confusion incident upon her first start into blue water, was worth more than all the comparisons I could ever have made from bare figures.

I was standing on a raised street that had suddenly been built in the river. I will call it Upper Thames Street. Upper Thames Street after a shower of rain, and a heavy visitation of coal-dust. There were ropes, and pulleys, and engines craning in cargo from barges; there were pools of water filled with rotten bunches of deal shavings, and chips of oak wood; there were coils of thin rope, and lines of thick rope; casks full of ale, of herrings, of ship's provisions; deep gulfs of holes gaping for trusses of bed and bedding, or for care-

less passengers, through the upper and lower decks far down into the base of the huge ship; great heaps of chain lying about amongst planks of wood, amongst heaps of bricks, and many sacks of potatoes. A dozen of these potato sacks took up as much room as all the correspondents who were refused admission, for the present, on board the ship, and who were running madly up and down the North Kent Railway, or dining in some musty hotel in the ancient city of Rochester.

The state of the ship at this time was a hopeless muddle. No common man on board connected with the ship seemed to know where he was, what he was doing, or to what department he belonged. Bodies of rigging hands pulled feebly at ropes, and uttered plaintive sounds, but with nothing like a will, an effect, or a sense of duty. Below there had been a grand early dinner in celebration of the successful towing of the Great Ship Company's whole capital thus far down the river, and many supplementary banquets were still being spread and devoured in the chief saloon. The enterprise was at rest, having passed all the dangers of Discount point, near the Blackwall bend in the river, and it stood motionless with its dark hull, its bare rigging, and its five short funnels, for glasses to be levelled at it from the Kentish hills, or for groups of men and women to watch as they walked along the swampy Essex marshes. Most of the visitors had departed by train to London, with a view of returning at different hours of the night. These were unruly lodgers, who availed themselves early of the latch-key privilege, and the watermen who clung round the ship, like floating barnacles, had reason to congratulate themselves on a splendid harvest.

The first great difficulty I had to contend with was to find my berth; the next great difficulty was to find a bed-room steward to help me. I was to be known by a certain number. I was to eat according to that number, and to sign wine-tickets with the same arithmetical signature. That number was 645, which represented a first-class berth, and as night approached I thought it advisable to seek for it. There was nothing very unreasonable in this, although the bewildered bed-room steward seemed to think so. If it had been any other number than 645 he could have found it, he thought, without difficulty. Would 220 do as well, or 730, or 102, or nought and carry one, or six times three is eighteen? I was sorry to give so much trouble to a man who was unacquainted with the plan of the ship; but I thought it best to seek for my proper place, having a strong objection to be turned out of bed by an indignant stranger

at some unknown hour of the night or morning. The steward procured a candle, and we began to examine the vessel.

We went down a broad staircase amongst the cellars of Lower Thames Street; and we went up-stairs again, in another direction, and down-stairs once more in another. We passed many carpenters, who were driving nails into walls, or sawing blocks of wood, or arranging fittings. We disturbed the repose of many jack-planes which were reclining in unfinished berths, and we interfered very much with the toilet of several workmen who lived in the places they were engaged to finish. We went into compartments containing three-shelf beds, two-shelf beds, and six-shelf beds; compartments without sofas, and compartments with sofas; compartments with portholes through which we could see the dark line of country on the river-bank, and hear the ripple of the water; and inner compartments where the bed-shelves were painfully close to the door, and the ventilation of a more than doubtful character. The bed-room steward was evidently taking his first unwilling lesson in learning the topography of the ship, and I was profiting by the same experience in a much more cheerful temper. The journey taught me that the fore-part was, in this vessel, constructed so as to be the best part of the ship; that the dining and drawing saloons were built along the centre, and that the sleeping apartments clustered in quadruple rows and double tiers of cells round the sides of the floating island. When 645 was at last found, it was in the possession of a troop of contractors' men, who had made it so dirty, and had so perfumed it with tobacco, that I felt no desire to disturb them. If a printed notice on the door had not given them some show of authority for being where they were, they had taken the most efficient means, as far as I was concerned, to secure themselves as masters of the situation.

Once more, then, the weary, bewildered, flustered bed-room steward retraced his steps, being met at every turn by persons who wished to know where they were; who told him to put a can of water into 228; to see that no one took unlawful possession of 818; to remember that 117 was engaged for Mr De Pass and family during the whole series of voyages; and to call 614 at six o'clock A.M., and not to forget the clean pair of Wellington boots, and a can of hot shaving-water. I began to relent in my persecution of this unfortunate servant of the company, and I took the first berth he offered me, after this, in a sort of Manchester warehouse, filled with unopened trusses of blankets, under the grand saloon, the number of which was 444, an

easy number to remember. Immediately opposite the door of this apartment was a large square structure, which went from floor to ceiling, and a couch upon which I saw a cool night's rest in perspective if I disliked the ventilation of my substituted cabin. The large square structure was that portion of the fore-main paddle-engine funnel, which stood between the second and third decks.

Having devoted so much time and exertion to the discovery of a sleeping berth, I was rather disappointed on finding that sleep was not an article supplied by the company on board their floating island. I am not a restless man, but I am unable to slumber within hearing of the siege of Sebastopol, the workshops of a hundred active Tubal Cains, the barking roar of some great steam monster puffing up a pipe as broad as a main sewer, the ceaseless blows of a steam water-pumping engine, and the fretful tapping of an iron chain against the iron casing of the vessel. It was not necessary to add the barking of a dog to this, except to fill up the intervals between the louder noises of the floating island.

The sights of the early morning on deck were the arrival of the pilot as usual in a dress-coat, and the heaving of Mr Trotman's patent anchor. Why all pilots should attend to work a vessel in opera costume I shall never understand; but why the patent anchor should be very obstinate in moving from the bottom is much more clear of comprehension, when I remember that the Admiralty have set their faces against it.

The obstinacy of the anchor in moving was a fault on the right side, and it gave me an opportunity of observing the working of an entirely new motive power in mechanics. It is called piccolo power, from 'piccolo,' a small flute. The upper and lower capstans are manned by a crowd of sturdy men, and the poles only begin to move, and the anchor to rise, when the small flute is played by an attendant Orpheus in a blue jacket. The tune is supposed by the ignorant to regulate the steps of the men, but no sensible person can be led away for a moment by this shallow opinion. I shall prepare a paper upon piccolo power for an early meeting of the Royal Society.

Another of the sights on board was Mr Gray's well-known invaluable patent machine for adjusting the ship's compasses. For those who were not capable of understanding the scientific use of this apparatus, there was a Michael Angeloesque lion on the outer case, which would always be worth its cost at any Art Union in the country. To those who had no taste for high art, science had kindly ad-

dressed itself in an humble and attractive cloak, and the case of the machine was suggestive of a brass retort for brewing hot elder-wine, or a highly-advanced baked-potato can.

Wandering down below, I came suddenly upon a small imitation of Newgate Market, the meat-house of the floating island. It was tolerably full of slaughtered carcases of various kinds, some stowed away like mattresses, and it showed me that only the servants of the company were allowed to set the ship on fire. Our candles were properly taken away from us by the bed-room stewards at ten o'clock the night before, and we were left in the dark to grope our way to our couches. Here, at eight o'clock in the morning, was a candle that had been stuck against a block of wood, and that had burnt down below the level of its dangerous socket. How long it would have been before it caught the wood-work it is impossible to say, but I extinguished it at once, without waiting to test the experiment.

Just above this meat-house was the grand saloon, the Versailles, or rather the Italian Court of the ship, an apartment that had consumed much capital in its elaborate and Crystal Palace-like decoration, that might, perhaps, have been more navally expended. A number of carefully-painted panels, divided by large plates of solid looking-glass, by the richly-curtained alcove doors that led to nests of berths, and by the berth window-holes cut out of a wall of golden flowers, were very pleasant things to look upon; but the whole of this apartment was a gilded sham. It had nothing like sea-going comfort about it; its space was limited for so large a ship, and its many mirrors were engaged all day and night in deluding the passengers as to the extent of their chief sitting-room. The couches are placed round those two highly-decorated and beglazed funnel shafts, which stood at each end of this Italian Court upon the water, a couple of smiling volcanoes. As you looked in those glittering mirrors to adjust your cravat, or brush back your flowing hair, you might have seen the dim outline of a death's-head peering over your shoulder.

Behind their deceitful faces was a steaming mass of destructive water, ready to explode at any moment. Their duty was to act as concealed funnels; their construction was to make them concealed boilers. The water constantly being passed through their outer and their inner surface (a space like that which would be made by putting a pint seed measure inside a quart measure), was a shield which protected the loungers in the ship's drawing-room from the heat of the inner or furnace funnel, and a feeder of fluid, at the same time, to the boilers below. This water was boiled in its progress, and passed into

the boilers warm instead of cold for engineering purposes, and the whole safety of the thing was provided for by a valve as large as a man's hand. In theory it was beautiful; in practice it has failed. From the stopping of a valve, the water-chamber became a closed boiler of explosive steam, and the result was an accident (as everybody knows) which would have destroyed the vessel but for the extreme solidity of its construction. This solidity of construction would have been no consolation to most of the passengers if the explosion had happened at the dinner-hour on Wednesday, when their banquet was spread in this apartment, nor to the ladies in their drawing-room just beyond, if it had occurred a couple of hours later in the evening, when the band of the floating island was beguiling the time with a concert. The fault was a workman's fault, and upon the unfortunate workmen the full weight of its consequences has fallen.

As we passed Gravesend, on our voyage to the Nore, on Thursday morning, the whole county of Kent seemed to be assembled in piers and gardens to watch our progress. The people looked like beds of flowers as they sat motionless on the land, and the ships in the river were bending down with the human fruit on their decks and in their rigging. By degrees the two coasts became misty, as they receded obliquely on either side; and we steamed out of the river cleft-stick at the full speed of our engines, which gave us thirteen miles an hour. At the Nore our anchor was once more let go, like a gigantic diver, into the sea, with a roar like the heavy rumble of thunder; the water for some distance round was turned into a frothing well of champagne, and it was some time before its excitement subsided. Our dinner, on this occasion, took place in the chief dining-room of the ship, an apartment divided from the grand saloon by an intervening kitchen, and running, with a supplemental chamber, past the paddle-boxes, under the first and second decks and along the centre of the floating island. The construction of this apartment was, in the main, the same as that of the chief saloon; only one funnel, however, belonging to the screw engines, passing through it from ceiling to floor. The other two funnels, further aft, which appear amongst the masts of the vessel belong to the same engines, while the two funnels fore (one of which was destroyed) belong to the paddle engines. The dining saloon was cramped and confined, like the gilded show-room, and round the sides were the same doors, areas, passages, and windows belonging to berths, like the lower section of any ordinary houses in an ordinary street, except that the windows were square holes without any glass in them. I passed the greater part of the night looking at the

pictures upon deck—at the brass-faced moon shining through the rope ladders—at the lines of rigging which seemed to cross the hazy sky, like many rows of black rails—at the blinking yellow lights off different parts of the coast—at the silent men on watch, who paced the deck, or leant lazily over the deep sides of the vessel—and at the groups of tarred and greased riggers, who clustered thickly round the hatches of the sea-going Italian Court, listening to the band music down in the ladies' saloon. The next night, at the same hour, the scene was far different.

On the morning of Friday, the anchor was weighed, for the second time, by piccolo power, aided and abetted by the singing of the men. Those men who were most musical were least useful in pushing against the capstan poles with their chests, as the latter operation is not favourable to good singing. About a dozen men seemed to go round between the poles, as if they were taking a little gentle walking exercise. It is true they were nothing but mere outriggers, the regular crew having received a small payment on account, which they were supposed to be spending in the traditional sailor-fashion at various out-ports. The discipline of the ship was sheer higgledy-piggledy, and no one seemed to feel this more than Captain Harrison, who was not the commander, except by courtesy, until the vessel arrived at Weymouth. The floating island had not yet received the sailing certificate of the Board of Trade, and was not yet formally handed over by the contractors to the proprietors. For all this, the shareholding interest was very strong on board, and the visitors were told by one of these gentlemen, when a spot of ink was dropped upon a cabin table, 'never to forget the fact that they were guests of the company.'

The morning brought with it a stiff gale of wind, and the promised steadiness of the floating island was tested more severely than it was ever thought likely it would be in the Channel. If the shares were half as steady as the vessel they represent, the shareholders would have every reason to be satisfied with their enterprise. The speed was undiminished at half power, according to the engineer's report, and also according to the pilot's measurement. The motion was nothing but a side-rocking motion, scarcely felt in the centre, without any pitching, and this is all that has been provided for by the lamp-swinging apparatus and other things in the cabins. These calculations may possibly be upset when she comes to the vexed question of the long Atlantic swell in rough weather, and I leave them to the test of experience.

There was quite a little Stock Exchange on board in the persons of the principal shareholders, and operations were in all probability made as she rounded Par Point, or ploughed rapidly along the Channel in sight of the white cliffs of Premium.

If the wind has the credit of playing many strange tricks with vessels at sea, it certainly ought to have the credit of playing even more strange tricks on the deck with the passengers. It causes them to put on unsightly disguises, as if they were giving a comic entertainment, and were coming up, half discovered, from behind a green baize table in the characters of a number of those fancy creations, which must appear as strange to those who know the world as an African Earthman or a Zulu Kaffir would appear in a drawing-room. The wind not only causes such passengers to envelop themselves in transformation caps, but it alters the very aspect of their faces. It pinches up the cheeks, it reddens the nose, it dishevels the hair, and almost prevents the son from recognizing his father.

A storm of rain is even more remarkable in its effect upon the ship's officers and the ship's passengers. Coming up from below, just after a sharp and sudden shower, I found the huge vessel entirely in the hands of a few oil-skin pirates. The director of the engines—the most gentlemanly of men—was not to be recognized in the black, wet, shiny coal-meter on the paddle-box; and generally the floating island seemed to be inhabited by a race of men who were partly fishermen and partly sewer-keepers. An hour, with a little sunshine, soon restored Upper Thames Street to its ordinary condition, and brought out the Rotten-row loungers once more upon its surface.

One great comfort experienced in walking upon the deck of the great ship, was the impossibility, as it seemed, of getting in anybody's way. You might look over the side without being hauled away by a rope, or walk down any passage without interfering with the work of the vessel. Six hundred persons were said to be on board, but no one was in the least aware of it. The hardy traveller, who rejoiced in sea-legs that had never been lost, and who loved to pass his days upon the paddle-box, might have taken fifty people up with him, without getting in the way of captain, engineer, or pilot. The latter gentleman, a short, sharp man, with a very shrill voice always coming through a bright speaking-trumpet, and who was always in a restless state of movement, never complained for an instant of being interrupted. If you went to perform the common but forbidden operation of speaking to the man at the wheel, you were only left in doubt as to which man you should speak to, because there were a dozen of

them. They stood directed by an officer, in a square steering-house, with windows in front, and looked like a squad of marines who were going through some exercise. There were patent indexes, and many other officers, communicating with each other along the ship's length, but you might walk for hours before they were forced upon your notice. You might wander to the large glass skylight over the engine-room, and look down on a slow-moving mass of green iron and bright oily steel, as large in appearance as temple columns, or the Marble Arch at Hyde Park; but the working engineers were invisible, far down in the gulf of an engine-room beneath, which was reached by clean network galleries, like the staircases of a great conservatory. You might look down the deep, square stoke-holes on deck, like the shafts of coal-mines, and see nothing through the narrowing Jacob's ladder of gridiron bars but a red glare across the bottom; and hear nothing but the roaring of engines, and the ringing of iron upon iron, or of iron upon stone.

You might go to the extreme head of the vessel, and gaze at the dull, misty coast, or the frothy water, and amuse yourself with a strange upcast of wind, which came so strongly up the sides of the vessel that the weight of a child would have been sustained upon it, as a pea is sometimes blown up on the top of a tobacco-pipe. Looking along the ship from this elevated post, you saw her whole length and breadth, with her rows of boats hanging over like a fringe on each side, her level deck, her upright masts, her restless pilot, and her more restless funnel-smoke, which was beaten down by the gale, and beaten up, and twisted about like a helpless struggling weathercock, in all directions. The Joint Stock Company (limited) is on board, unlimited and happy. She walks the waters like a thing of life. For the present; only for the present.

The regular dinner had been finished about ten minutes; the time was between half-past five and six P.M., on Friday, the 9th of September, 1859; we were passing Hastings, and Belshazzar's feast had begun. A dozen of 'our own correspondents' had remained at the table to congratulate a director of the company and a proprietor of newspapers, upon the prospects of the great vessel in which they were seated. That director had just risen to acknowledge the compliment, when death stared him, and stared us all, in the face, and spoke to us in a voice of thunder through a dull booming sound, a crash, another crash, and a fall of some heavy weight upon heavy wood. A number of shrieks upon deck, a distinct shock, a shower of

broken glass which fell upon our table and about our heads, a smell of hot steam, and a sense of some awful danger, brought us all upon our feet. I instantly recollected all that had ever been said against the vessel, all the monsters I had seen amongst her machinery, all the mysterious noises I had heard at the back of every partition during the night, all the gulfs I had looked into upon deck, and still I could come to no conclusion. It was not my place, nor the place of any man at that table, amongst 'our own correspondents,' to fear death. We were there as running historians for running readers, and it was our duty to see and record as much as possible. Any other course of action would have been a fraud upon our employers—the public.

I have no particular kind of courage. I cannot endure a cut finger; but I have sufficient nervous excitement to carry me through Pandemonium, and out at the other side. It carried me through the steam, down a staircase, into the grand saloon, which had been blown to pieces by the explosion of the water-casing all down the main fore funnel. Not a vestige of the volcano in a glass case was to be seen. The iron funnel, weighing many tons, had been shot up from its root in the hold of the ship, through the roof above, to fall across the deck, with its inner casing crumpled up like dried parchment. The hangings were torn and disordered, the floor was covered with broken glass, the barley-sugar-stick rails in some places were displaced, the carpet was rolled up and smoking with damp heat, the mirrors were either shattered or dimmed with thick steam, and the lamps in some places were broken down or were wrenched awry. The gingerbread glory of the Italian Court at sea was gone. The couch upon which I had been sitting, two hours before, with my back to the bursting funnel-boiler, was also gone, but the bookease, nearly opposite, from which I had taken a book, still remained. The chess-boards I had specially ordered for the evening's amusement in this arabesque sepulchre were overturned. The floor was rent asunder in a hundred places, and in the ladies' saloon, along the centre of the apartment, it was thrown up into a bow, and torn into shreds like the strips which cover a case of oranges, or like you may cut a band-box with a large knife. The private staircase of this inner drawing-room was blown in all directions, together with its covered way or pavilion, which stood upon deck. Down below there was a broad, deep gulf like a sprung mine, filled with fragments of heavy timber and splinters of wood, all torn as small as if they had been prepared for special sale. They were lying in shelving heaps against the wall, and the whole place looked like a large building-yard after a volcanic eruption.

Down another gulf in the Italian Court there was a bundle of ragged planks, sticking up, in many directions, and a pair of smaller funnels, which had come through the floor of the spot where the volcano in a glass-case had formerly stood, and which were crossed like the letter X, some distance up into the once gorgeous apartment. This part of the vessel was never meant for sea-going purposes, but only as a river show, and it came to a violent and untimely end.

As I was among the first in this shattered cell of over-decoration, I saw the captain's little girl hurried out of a passage leading to a nest of berths on the left, and passed on up-stairs uninjured. She was the only person in the room at the time of the explosion. Looking over the rails near the left chief doorway, down a well that had been made by the blowing away of certain skylights, I heard several frantic cries of 'They're buried!—They're dying!—They're smothered!' Immediately after this about a dozen excited men began to tear frantically at a huge jammed heap of splinters, blankets, mattresses, doorways, couches, iron, and glass. Above the din you could hear the regular moans of a person in distress, and this only served further to excite the men who were endeavouring to tear away the obstinate rubbish.

'He's here!—He moves!—Heave down a rope!—Pull up a chain!—Handy, there!—He's gone!—Hah!'—and a hundred such phrases were shouted by every man below, while many jumped upon the welded mass of fragments, without knowing what they were doing. The buried man was at length dragged out underneath the heap by the energetic and well-directed exertions of Mr Hawkins, the chief boatswain, to whom he may consider himself indebted for his life. He presented a sickening spectacle of blood and bruises as he was carried with loud cheers up the saloon staircase, but his wounds were happily slight, although he would probably have been suffocated in a few more minutes. He was a near neighbour of mine as far as sleeping accommodation went, being placed next door but one. He had retired to his berth after dinner (as I might have retired to mine, but for the little compliment we were paying to the director), and while there the ruin came upon him like a cloud of dust. The only trace that I could find, some time after, of my berth—No. 444—was the fragment of a figure-plate upon the main wall.

Passing on to the deck again, I met a number of stokers carefully carrying a scalded comrade of theirs, who was one of thirteen injured by the explosion through the furnace down one of those fearful stoke-holes. One man had jumped through a port-hole in his agony—to

be immediately drowned; and the poor fellow who was being carried along the deck was crying hysterically, most probably from fright. The whole crew, with a few exceptions, were very much unnerved. Another victim soon came along, who appeared to be doubled up, as if with cramp, but who endeavoured to walk, with a little help. I followed these men into what was called the dispensary, or hospital-hold, down a dark and double flight of steps, by the light of a flickering candle, round a corner, and between two long tables, across a lower unfinished common dining saloon; through another rough deal door, and down a dark winding staircase; across a kind of hold, up a pair of ladder steps, and along two passages, until at last I opened the door amongst the wounded, dead, and dying. It was a low-roofed, dirty, wretched place, with a small surgery at the end, and as one man was putting down mattresses and preparing blanket-beds, another was sweeping up the shavings, dirt, and chips foom the floor. It was not large enough, nor airy enough, to contain the dozen injured men, and some were placed upon tables in a hold of the vessel. A number of beds were pulled to pieces for the sake of the white soft wool they contained, and when the half-boiled bodies of the poor creatures were anointed with oil, they were covered over with this wool, and made to lie down. They were nearly all stokers and firemen, whose faces were black with their work, and one man who was brought in had patches of red raw flesh on his dark, agonized face, like dabs of red paint, and the skin of his arms was hanging from his hands like a pair of tattered mittens. He was marked early for peace and death, while the others, who have since gone to rest, were moaning, and complaining of thirst or cold, and were with difficulty kept down in their rude beds all through the bitter night. Poor fellows! they add a few more martyrs to the long list of men who have been sacrificed in the working of fancy inventions. As they lay with their begrimed faces above the coverlets, and their chests covered with the strange woolly coat that had been put upon their wounds, they looked like wild beings of another country or another world, whose proper fate it was to labour and suffer differently from us.

All through the bitter night, as the huge vessel, whose shell was uninjured, still kept upon her course to 'ensure the commercial success of the undertaking' (I use the exact directorial phrase), many groups of whispering riggers and stokers were standing in corners of holds and parts of the deck, while the passengers who had lost, or who had forsaken, their berths, either walked about until daybreak, or slept feverishly upon chairs and couches, or under the staircase

pavilions on deck. Many servants of the public, like myself, were busily employed in examining the results of the explosion, in eliciting the true character of the accident bit by bit, and in collecting, with some difficulty and opposition, that painful information which was laid before the public by telegram the first moment we were allowed to go on shore. To help in ensuring the commercial success of the undertaking, we were kept the prisoners of the company from Hastings to Weymouth, and we were insulted by being asked and expected to place an official report in the columns of the newspaper press, which had the singular peculiarity of concealing every particle of the truth. Having passed, by some miracle, through what every competent and unprejudiced engineering authority on board declared to be the greatest explosion, considering the weights and forces, that had ever happened on board a steam-vessel, we were asked to call it 'an accident,' and to say that 'several stokers were injured,' when three were already dead, and five more out of the other ten were not expected to recover.

It is almost needless to say that such a report was indignantly rejected, and that I, for my part, claim to be considered no enemy to an interesting and great enterprise, no foe to progress, no antiquated croaker, or man behind my age, because I decline to accept a purely experimental vessel, on a disastrous experimental trip, round a portion of this island as a proved great ocean success, and because I have joined with a few others in speaking the whole unqualified truth.

THE GREAT PUGILISTIC REVIVAL.

THERE was a period, not more than some twelve months ago, when most of us thought we could never publicly state that we had seen a prize-fight. We had some notion that the 'Ring' was dead; and that its ropes and stakes had never been properly disinterred since their burial, some years back, at Mousley Hurst. We had some notion that its exhibitions were illegal, and that its professors were compelled to live upon the traditions of the past, and bite their moth-eaten boxing-gloves in pugilistic bar-parlours. It is probable that we did not regard these professors as a down-trodden race, because we considered them at war with our present civilization. We looked upon them as melancholy

relics of a departed fashion—as men who persisted in supplying an article that the public no longer called for or desired. The present writer, for one, set them down, in his notes for a great history of England, as having practically gone out with watchmen, oil-lamps, and stage-coaches.

During the last five years, however, the World (meaning of course the United Kingdom of Great Britain and Ireland) has witnessed many full-blown revivals, and, last among them and not least, a thorough revival of Pugilism. There has seldom been any demonstration so sudden, so successful, and so complete. I have seen the late contest between the immortal Sayers and the immortal Heenan, apologetically described as an 'exceptional event.' The journalist was timid, and was feeling his way. I have also noticed a little shyness on the part of certain distinguished spectators of the battle, who gave the Ring the sanction of their presence, but not the sanction of their names. A few more of these exceptional events may dispel all such mock modesty.

From the first moment when the late exceptional event—the international prize-fight—began to assume the aspect of a great and coming fact, there was the shallowest possible attempt on all sides to keep up appearances. People remarked very mildly that such disgraceful spectacles ought to be stopped, and immediately staked two to one that the Englishman would beat the American. A member or two in the House of Commons tamely asked the Home Secretary what he intended to do, and his reply was generally to the effect that he would try to keep up appearances. The powers of the metropolitan police were put in force, and they kept up appearances by pushing the training combatants into the country. Local constabulary forces, finding that they also were expected to behave with superficial decency, hunted the American (not very chivalrously, seeing that they might have hunted the Englishman), until he was bound over to keep the peace, with two sureties, to the extent of a hundred pounds. That extremely useful end attained, they retired, like good men who had thoroughly done their duty in keeping up appearances.

When I went out into the frosty air, instead of going comfortably to bed, about one o'clock, a.m., on Tuesday morning the seventeenth of April, 1860, I held a railway ticket in my hand, that was printed to keep up appearances. A journey from London Bridge to nowhere and back, by a special four o'clock train, was all that I was guaranteed by this slip of cardboard, in return for the sum of three pounds sterling. For all this seeming mystery the railway company knew

that I knew I was going to the great prize-fight; the policeman who saw me close my street-door at that unseemly hour knew that I was going to the great prize-fight; the cabman who drove me to my destination was bursting with intelligence of the great prize-fight; and the crowd who assembled round the railway station were either going with me to the great prize-fight, or had come to see me go to the great prize-fight. There was an affectation of secrecy about the movements of some of the travellers, a reflection of the many eye-winkings they must have seen for the last few days; and there was an affectation of caution on the part of the railway company in dividing the passengers, and admitting them simultaneously at different entrances. These passengers moved silently along the passages, and across the platforms, as if they were trespassers upon the company's property, who had stolen in while the directors were asleep, and were about to run away with the rolling stock, with the connivance of a small number of the railway officers. The anxious, threatening glances that were cast upon unknown people, and the many whispered inquiries as to who was, or was not, a detective policeman, gave a very pretty burglarious tone to the whole station for at least an hour before daybreak. The farce was extremely well acted, and appearances were carefully kept up to the last. The favoured railway had been known for months (it was the first that was ever mentioned in connection with the fight); the very spot upon which the battle was to take place had been confided to hundreds for days; and the morning, the hour, and the point of departure, had been openly sold like any commodity in the market. It was all a preposterous keeping up of appearances. The fact is, there was no public desire ever manifested to stop the contest, but a very strong desire to hear that it had been fairly fought out. In the face of such a feeling the law was paralyzed; its function not being to make a whole people more virtuous than they really are. The nation has no logical complaint against the law for standing still on this occasion, but only for its ridiculous pretence of being constantly on the alert.

There were never, perhaps, so many passengers assembled on a railway platform, who knew and addressed each other by familiar Christian names. The whole train might have been taken for a grand village excursion, but for those unmistakable faces that rested in the folds of the carriage cushions, under the dim light of the carriage lamps. The small eyes and heads, the heavy jaws, and the high cheek-bones, were hung out, like candid signboards, to mark the members of the fighting-trade. The two or three hundred Americans,

and the small sprinkling of aristocracy and visitors, were not sufficient to modify, in any perceptible degree, the thoroughly animal character of the train.

I obtained a seat in a rather overloaded double compartment of a second-class carriage. Behind me were a live lord, a live baronet, a member of Parliament, the very gentlemanly editor of a distinguished sporting paper which has always done its utmost in the cause of fair play and honest dealing, an aristocratic Scotchman, a clergyman of the Church of England, and a renowned poet of the tender passions. By the side of me was a young, cheerful, round-faced Australian settler, who had travelled fifteen thousand miles to see the fight, and to transact a little business of minor importance. His dress was light, his manner self-reliant, and he looked the kind of man to go round the world unencumbered with luggage, with a cigar in his mouth, and his hands in his pockets. Opposite this passenger was a mild, long-faced, blinking gentleman, of Jewish aspect, who talked very fluently, and seemed to know all the minor deities of the ring. By his side was a drowsy and ragged member of the fighting craft, whose prospects seemed blighted, and whose scalp had been taken by the immortal Sayers in a battle some eight years before.

The labour of keeping up the conversation in the carriage, rested chiefly upon the Australian settler and the talkative Jew. The aristocracy seemed shy. They were diffident, perhaps, of their sporting knowledge, or were sleepy from having been up all night.

'I saw a good fight in Melbourne,' said the Australian, 'about a week afore I left.'

'*Did* you?' returned the talkative Jew.

'There's a fortune there,' said the Australian, confidently, 'for any man about eight stun nine.'

The drowsy fighting-man, with blighted prospects, slowly opened one eye.

'There's no good man there,' continued the Australian, 'under nine stun.'

'How about Fibbing Billy?' asked the talkative Jew.

'Used up.'

'Joss Humphrey?'

'Bounceable: wants it taken out of him. Fights at ten stun; gives any man a stun, but won't strip for less than a thousand pounds.'

'What name?' asked the blighted prize-fighter, this time opening both eyes, and becoming languidly interested in the conversation.

'Josh Humphrey,' answered the Australian settler.

'Ah!' returned the blighted prize-fighter, relapsing into drowsiness. Australia seemed a long way off, and capital did not appear to be forthcoming. It was an opening for a smart, active young man, but he was not in a position to avail himself of it.

'Nick Muffles could tackle him,' remarked the talkative Jew, addressing himself, almost confidentially, to the blighted prize-fighter.

'Ye-s,' was the drawling answer, finished off with a yawn.

'Nick's clever,' said the Jew.

'Ah!' returned the prize-fighter.

'Ain't he artful?'

'Ah!'

'Don't he get away?'

'And keep away!'

'But ain't it smart?'

'Ah!'

After this favourable review of their absent friend's fighting qualities, the blighted prize-fighter made a few observations in praise of Nature before he again closed his eyes. He seemed to be an admirer of daybreak, and a lover of gardens. The Australian kept up the conversation with the Jew by inquiring after many old prize-fighters whom he had known before he emigrated. Some were dead, some had thrived, some had disappeared. They were all asked after by affectionate Christian names, like many actors, and most comic singers. The pugilistic profession seems never to have had more than two 'Misters' in its ranks: the late ex-champion, 'Mr' Gulley, M.P. for Pontefract; and the late ex-champion, 'Mr' Jackson, teacher of boxing, and one of the coronation pages to King George the Fourth.

As our journey continued through Kent, and into Surrey, we were amused by seeing many official scarecrows, keeping up appearances by being posted along the line. A few blue-nosed policemen at the stations; four other shivering policemen under a clump of trees; a few galloping police-officers, taking equestrian exercise on the coach-road below; represented the winking majesty of the law. Their faces showed the make-believe character of their opposition to the exceptional event.

When, after a journey of two hours, we were set down at the Farnborough station, it struck me that no more appropriate fighting-ground could have been chosen throughout England. We were near the great military camp of Aldershott—a place where thirty thousand warriors are always studying how best to kill and to destroy. They

belong to a great European prize-fighting association, which boasts of some three millions of active members; by the side of whom the puny company of professed pugilists sink into contempt.

The appearance of our train, and of the passengers who hurriedly alighted from it, was a signal to some of the scared farmers to barricade their dwellings. They knew that fifteen hundred people might prove a dangerous invading army, pushed along as they had been by the strong metropolitan authorities into the feeble arms of the local police.

A muddy tramp over half a mile of marshy meadow land, where we had to jump over small ditches, and struggle through hedges, brought us, at last, to the field selected for the battle. The stakes were driven in with wooden mallets, and the ropes were adjusted by a veteran prize-fighter, about seventy years old—a sage of a hoary and venerable aspect. Around the ring, when formed, we ranged ourselves in a very eager, selfish, noisy, expectant, brutal mob. There was no one man there who could say I am more refined than my neighbour. For the time being we were all equal, and our country was anxiously waiting behind us to read an account of everything we were about to see. There were dukes, lords, marquises, clergymen, actors, singers, managers, authors, reporters, painters, and poets, mixed with plain country gentlemen, military officers, legislators, lawyers, barristers, merchants, card-sharpers, fathers of families who brought their sons, thieves, fighting-men, trainers, horse-dealers, doctors, publicans, contractors, feather-weights, light-weights, middle-weights, heavy-weights, Americans of all classes, Irishmen of several classes, and Scotchmen also. Scarcely an art, a profession, or a class was unrepresented. Later in the morning, when the country was aroused, we had farm labourers, women, country girls, and little children, a few policemen—still keeping up appearances—and a country idiot, with helpless hands and feeble legs and gaping mouth, who was the only innocent, irresponsible spectator of the fight. A number of active visitors swarmed up the slender trees which surrounded the meadow, whence they looked down upon the ring, like staring and grinning apes. There was even a timid old gentleman present, who, rather than stay away, had hired two professional fighting-men to protect him.

When the immortal Sayers stepped into the ring, at about seven o'clock in the morning, he was received, like a popular performer, with a round of applause. His immortal face was a deep sallow brown, and looked like a square block of walnut wood. His expres-

sion was even a little more strongly marked for pugilism than that of most of his craft. He was slightly nervous upon facing the company.

His opponent, the immortal Heenan, next entered the ring, to be received with quite as much enthusiasm as the English champion. He looked much fairer than Sayers in the face, and was equally nervous. His portraits had flattered him in the eyes of the British public. There are two styles of nose which all prize-fighters must be content to select from—one, presenting a flat, triangular appearance; the other, indented near the tip, and slightly turned up, so that you could hang a key upon it. The immortal Heenan had a moderate nose of the last pattern.

The two immortal men shook hands, and seemed to inquire cordially after each other's health, which was the signal for another round of applause. They eyed each other curiously and reflectively, as they had never met before.

The ring-keepers—some twenty selected pugilists with long sticks, of whom some were afterwards disgraced for grossly neglecting their duty—were now very busy in arranging the visitors: causing those in front, who had purchased inner-ring tickets, at ten shillings each, for the benefit of the P.B.A. (Prize-fighters' Benevolent Association), to sit down upon the wet turf, their railway rugs, or camp-stools that were selling at a sovereign apiece. One indefatigable caterer openly lamented the loss of a ten-pound note through his not having brought down a few boxes for gentlemen to stand upon. The country people seemed to make little harvest of the general excitement, except in the sale of oranges. The thieves were very busy, and the Americans were their greatest victims. The picking of pockets, however, is no more peculiar to the prize-ring than to popular chapels.

Rounds of applause were very freely bestowed at every opportunity. There was one when the immortal Sayers took off his coat and shirt; there was another when the immortal Heenan did the like; there was a tremendous burst of satisfaction when the two men, in full fighting order, stripped to the waist, and advanced towards the 'scratch' in the centre of the ring. They looked firm, muscular, and cheerful, the result of their training; but the constitution is not improved by these violent changes from indulgence and idleness, to temperance and enforced exercise. Consumption and dropsy are common amongst professional pugilists, and sometimes the two diseases combine. Everything in training is sacrificed to showy muscle and wind.

There was a ceremony of tying the combatants' colours—two gaudy pocket-handkerchiefs—to the stakes; there was another cere-

mony of shaking hands between seconds and champions; there was another ceremony of tossing for choice of 'corners,' or position in the ring. There were almost as many ceremonies as at a coronation. Everything was conducted according to certain forms and rules, almost superstitiously observed.

The choice of the corner was won by the American, and he took his place. His back was to the sun—a bright, glaring sun—and his ground was slightly higher than that of his adversary. In stature he is six feet one and a half inch high; and besides being five inches taller than Sayers, he is, of course, heavier, and eight years younger.

The two immortal heroes of the hour stood up before each other in the most approved attitudes. Their left sides were advanced; their right arms were laid across their chests; their left arms were thrown out and drawn back, like the pawing leg of a horse. Their visitors watched every movement, for the present, in breathless silence; while their seconds peered at them from opposite corners, like wicket-keepers in a cricket-field. There was a forced laugh on each champion's face, that was meant to be agreeable. Their left feet kept tapping the ground, in a kind of dancing step; their heads were frequently thrown back, or bobbed down; and they skipped from side to side after aiming or parrying a blow. At last the first stage in the fight was reached, amidst uproarious applause the immortal Sayers had succeeded in drawing 'first blood' from his antagonist.

These movements were repeated with such slight variation, that pugilism, like most games of skill, must be pronounced monotonous. It was some little time before the next great stage in the battle was reached, and the first knock-down blow was received by the Englishman.

The excitement round the ring now began to break out, and hoarse shouts were exchanged from each side. Enormous sums of money were loudly offered, by rough and shabby-looking people, upon either champion, and aristocratic eyes stared intensely through many eye-glasses. Unruly visitors leaped up from the grass, and danced wildly near the ropes; while the ring-keepers applied their sticks, without stint or favour, to the visitors' heads and shoulders. The same movements were repeated again and again by the champions, with pretty nearly the same results. The immortal Sayers was knocked down at least twenty times by the immortal Heenan, or fell, humouring his blows. The turf was soft, and he had to counter-

balance his many disadvantages by 'science,' or careful tactics. He was always picked up by his seconds in the most affectionate manner, and carried to his corner, like a Guy Fawkes, to be sponged.

An hour soon passed in this way, without any signs of the battle drawing to a conclusion. The immortal Sayers's face, with the sun full upon it, was like a battered copper tea-kettle; his right arm was stiff and helpless; and he was freely spitting blood. The immortal Heenan's right eye was closed-up with a huge lump of blue flesh, produced by the Englishman's well-directed and determined blows; his upper lip, too, was puffed out, as if there were six rows of gums and teeth behind it. When Sayers gave a telling hit, he stopped, and looked inquisitively at his adversary, to see what damage he had done: and after Heenan had knocked his opponent down, he turned to his seconds, threw up both his arms, and opened his swollen mouth in a gasping manner.

The excitement was now at its height; and a constant roar of voices was kept up round the ring. People at the back made desperate attempts to mount the shoulders of those in front. Nervous betting men, with heavy stakes upon the contest, got out of the crowd, and walked about the meadow. The wind hissed through the trees, and the hundreds who clung to the bending branches shouted loudly for each combatant, according to the tide of battle. A few county policemen came upon the field, to keep up appearances, and, when they timidly ventured to push into the ring, were quietly hustled on one side by the savage spectators. A few oaths were heard, but not many; the pale faces round the inner circle became paler, the compressed lips more compressed; bets of various amounts were still loudly offered, and loudly taken; outsiders leaped up and down with ceaseless activity; the smacking blows of the combatants were heard, their visible effect was described to excited inquirers, and the news passed from mouth to mouth; opinions fluctuated; the Englishman was abused or praised, so was the American; the referee was nearly smothered; and the only men who really seemed to retain calmness were the two combatants, their seconds, and the leading prize-fighters present. When, at the end of two hours, and in the thirty-seventh round, the American got the neck of the Englishman across the rope, it was not the fault of the general multitude that murder was not presented to them as a crowning treat for their money. The American was requested to 'hold him' by a thousand voices on the ground, and in the trees; but at the height of the uproar the ring was broken, the referee was forced out of his place, and all became wild

confusion. This is no new ending to such a contest. The referee was the editor already referred to, who for years has done as much as a gentleman in resolute earnest could, to imbue these men with principles of honour, justice, and self-restraint. Surely there is something wrong, after all, in the 'Noble Art' when he is set at nought when most needed, and when the well-conducted men among the pugilists cannot rely upon their own brethren to preserve a clear stage and no favour, but are forced to the declaration (as they have been in this case) that even the men of their careful selection are not to be trusted with the limited responsibility of keeping the Ring.

This fight has been declared 'a draw,' and a draw it certainly was in every sense of the word. It drew hundreds of people from many parts of the globe; it drew thousands from their beds; it drew four or five thousand pounds sterling for a special railway train, one half of which sum will be divided, by arrangement, between the two men. It drew all England from its usual business engagements about midday, on the memorable Tuesday, the 17th of April, 1860. It drew thirty-five bales, containing two tons of newspapers (the largest number ever shipped aboard one ship), to America, at the earliest possible moment. It drew several distinguished mercantile bodies into subscribing testimonials for the English champion; it drew uncountable numbers of people into supporting a great pugilistic revival.

It has been my misfortune to see many chance fights of a determined character—one particularly between two navvies in a sewer—and though there was less 'science' about them, less (as one may say) of the ring dancing-master, there was more real 'punishment.' I find it difficult to reconcile the appearance of both Sayers and Heenan, the day after the fight, with the accounts that were printed of the awful character of the battle. There must surely be a little exaggeration somewhere—perhaps everywhere?

Think what the unconscious exaggeration floating about is likely to be, when the exaggeration of wild sentiment on this subject gets Stock Exchanges, and Mercantile Exchanges, and heaven knows what agglomerations of sensible and sober men together, to receive the immortal Sayers with high public distinction, and shower money on him. I do not doubt that the sturdy and bold champion of England is a thoroughly good fellow in his way and in his place; I am very far from taking on myself to assert that, within those limits, he has not his honest uses; but I cannot forbear asking now, after a pause of a few months, when there has been time to cool, whether this great

Pugilistic Revival, in this extravagant aspect, is not a new and noteworthy instance of a great moral epidemic? Is it not well that we should turn it to advantage by so accounting and remembering it? Then, when we observe in another country not our own, the next strange contagion that may seize it, we shall be more tolerant thereof. Then, when some new frenzy sets in here, we shall not fall to tearing one another to pieces about it, or to wresting Heaven and Earth out of shape to account for it, but shall say 'it is a fever—an infection—will soon expend its force as a disease, and go the mortal way of the two immortal prize-fighters.'

To keep up appearances is a constant British effort. In the keeping up of appearances concerning this fight, the thing has been reduced to a point so transparently absurd and hypocritical, that the force of humbug can go no further. Will any member of Parliament, who was at the fight, be so exemplary, therefore, as to 'back his opinions,' like a man and a Briton? Will he protest against the professors and amateurs of pugilism being steamed down a railway and hunted over ploughed fields to form a ring, merely for the formal exhibition of a scarecrow law? Will he give notice of a motion for enabling himself and me to see the next fight, in some commodious public building in London hired for the occasion, surrounded by every convenience and every comfortable appliance?

THE HAPPY FISHING-GROUNDS.

THERE has always been a charm to me about the fisherman's trade; a picturesque aspect, not only in those red-handed, heavy-booted, half-sailor-like dwellers upon the stony coast, who go slowly out in short, fat, bounding boats, to cast their brown wiry nets into the sea, but a rude poetry even about the sloppy fish-market of Lower Thames Street, with the steep and narrow City lanes that lead down to the loaded hoys, and end in a tangled web of rigging, masts, and cranes. Some portion of this bloom is thrown, to my fancy, over the old salt, small-windowed, yellow City oyster-shop; and it always seems to me that I have only to listen against the wall of such a place and hear the hissing of the sea, or to take up the floor of the little, dry, fishy counting-house, and

find the blue waves rolling and beating at my feet. The solid surroundings of such a storehouse melt silently away, and shadowy ancient mariners pass in and out. The din of the busy street is suddenly hushed, and I hear nothing but the roaring of the wind. The low black rafters, hung with striding forms of bat-like fish, press down on me no more, and nothing but the gray sky, or the blood-red sunset, is over my head. I see the dwarfed fishing-village across the waves; the cobwebbed lane of drying nets that winds down to the sands; and the soddened lobster-catchers struggling between the sunken rocks. I hear the mellow tolling of the church bells in the little turret that peeps over the huts. I see even further, to a small harbour on the Normandy coast, where a high-capped fisherman's wife is helping her sons and her husband as they drag out their battered boat. She watches them leave the shelter of the little breakwater, and plunge into the open sea; she looks anxiously at the black mountain of cloud that stretches, like a menacing angel, over the distant town; at the blinding columns of sand that come whirling along the old winding pier; and she drops in silent prayer before a weather-beaten crucifix that is raised upon a mound at the road-side.

With such day-dream visions as these, even in an old City oyster-shop, it is not to be wondered at that I have a passion, in all weathers, for dropping quietly down to the coast, and burying myself for a time in one of those hilly nooks, where none but boatmen and fishermen can be born, can live, and can die. The places that I love most are those where the 'season visitor' is almost, if not totally, unknown; where bathing-machines have never yet penetrated; where the stranger is truly a being of another world; and where the inhabitants believe, with a proud and simple faith, in the unequalled beauty and importance of their little scaly town. Many such places as these do I know, even within fifty miles of the Royal Exchange; and Whitstable, in Kent, the port of Canterbury, on the estuary of the Thames, is one of my especial favourites.

Many important towns, in many parts of England, exist upon one idea; and Whitstable, though not very important, is amongst the number. Its one idea is oysters. It is a town that may be called small, that may be considered well-to-do, that is thoroughly independent, and that dabbles a little in coals, because it has got a small muddy harbour, and a single line of railway through the woods to Canterbury, but its best thoughts are devoted to oysters. Its aspect is not sightly, if looked at with an eye that delights in the stuccoed terraces and trim gravelled walks of a regular watering-place; for the

line of its flat coast (which takes up one side of a bay formed by the Swale, a branch of the Medway) is occupied by squat wooden houses, made soot-black with pitch, the dwellers in which are sturdy free-holders, incorporated free-fishers, or oyster-dredgers, joined together by the ties of a common birthplace, by blood, by marriage, capital, and trade. It has always been their pride, from time out of mind, to live in these dwarfed huts on this stony beach, watching the happy fishing-grounds that lie under the brackish water in the bay, where millions of oysters are always breeding with marvellous fertility, and all for the incorporated company's good. How can the free-dredgers, and the whole town of Whitstable, help thinking of oysters, when so many oysters seem to be always thinking of them?

A primitive and curious joint-stock company it is; a joint-stock company whose shares are unknown upon the Stock Exchange, because they are never in any market except Billingsgate market; a joint-stock company that may not be peculiar to Whitstable, but is peculiar, so it seems, to all happy fishing-grounds, where oysters are cultivated, and the capricious bounty of seafaring Nature is reduced to a mathematical certainty by the application of capital and laborious care. It was not formed by any active and calculating company-maker, whose office is in the city of London, whose profit is a percentage upon all capital raised, and whose ambition is a secretarial chair. It came together, in the dim old times, as a family compact, and a family compact it still remains. Its three hundred and forty odd members are all Whitstable men, or Whitstable widows and children. The stranger is never admitted to the rights and profits of a dredging-freeman, though the strange woman may be brought, by marriage, into the oyster-tents, and may rear up sons who shall go forth and fish. The male infant is born, a young shareholder, in one of the low, pitch-black wooden houses on the beach; he is nursed to the tune of an oyster-dredging lullaby, to the howling of the wind, to the hissing of the surge. He staggers into the back parlour as soon as he can walk, and finds it a Robinson Crusoe's storeroom, filled with canvas, coils of rope, old oars, nails, paint-pots, and parts of ships. He tumbles out of a door at the end, and down some steps, on to the pebbly shore, where he plays on the border of his happy fishing-ground, or clambers into a boat bearing his father's name, which lies high up on the beach, half filled with the skins of dead star-fish, with cockle-shells, and muddy crabs. As he grows older, he sees nothing to wonder at if a wooden staircase comes down from the top rooms of his father's house at the exterior of the side

wall; and he thinks an old figure-head of Minerva, swept ashore, perhaps, from the wreck of some collier, an ornament for a parapet, superior to any statue that was ever hewn out of stone. His first budding geographical idea is that Billingsgate is the chief city of the world; as that is the only part of the great metropolis which comes into immediate and constant contact with his native town. He thinks that the handkerchief which his sister wears over her head and shoulders in summer, like a monk's cowl, or the shawl which she wears, for greater warmth, in the same way, in winter, the most elegant head-dress that was ever planned. The fact that Canterbury, a cathedral city, about seven miles off, has never adopted this head-dress, is nothing to him, for he knows that Whitstable men are perfect in matters of fish, and he gallantly considers that Whitstable women must consequently be perfect in matters of taste. He looks upon a crowd of fifty blue woollen-shirted, heavy-booted, oilskin-capped free-dredgers, standing in the Whitstable High Street (the one main street of the town), as something which a place called Cheapside has never matched for noise and bustle, even on its most busy days. He is aware that the South-Eastern Railway has long since joined his native town to London, and that the North Kent Railway, with its continuations, has also advanced to within a single stage.* As the produce, however, of his happy fishing-ground is never landed at all, being shipped in his old, round, soppy market-hoys that are anchored in the bay, and conveyed to market direct by water (the cheapest way), he is not brought much in communication with the iron road, and he leaves it to the harbour traffic in coals and stone.

The free-dredger is thoroughly independent, not given to touch his hat to lord or squire; and if he does pay any mark of respect to the Duke of Cumberland, it is only as the sign of the dredgers' public-house, where the profits of the free company of oyster-fishers are divided and paid. At fourteen years of age he may look with hope towards this old smoky tavern, and may enter as a fisherman's apprentice, to see his master paid; but at twenty-one he comes into his full birthright, his share in the myriads of oysters he had so long been thinking about, with all the claims and privileges that belong to the free-fishing state. He is then permitted to attend the 'Water-Court' on the second Thursday in July. Here all the dredgers meet and vote by ballot, revise the by-laws, appoint the nine watchmen with three watching boats, the foreman of the

* October, 1859.

ground, with his deputy, and twelve jurymen are chosen as the board of management for the year.

On this great day the whole town of Whitstable is hung with flags; and the sound of festivity is heard in the two principal taverns, and in the small wooden drink-shops that are scattered along the shore. The inhabitants, who have long brooded over the oyster in the privacy of their homes, come forward now, and sacrifice publicly in its honour and praise. The young freemen are led into flirtations with maidens who are outside the incorporated dredgers' exclusive pale, and young brides are soon brought into the huts of the faithful, to gladden the hearts of the old freemen with the prospect of the company being preserved from decay. If a free-dredger dies without male issue, then his share becomes ingulfed in the common stock; but his widow receives a certain reduced payment out of each day's fishing profits, up to the time of her death. The aged, infirm, and superannuated, about one-fifth, are provided for in the same way, as well as those who are compelled, by temporary illness, to stop on shore. No one that has once been connected with the happy fishing-grounds is ever found begging for a loaf of bread.

The industrious little fleet consists of about eighty fishing-smacks, and fourteen market-hoys. The hoys are, of course, occupied in going to and coming from Billingsgate, but the fishing-boats are always moored in the bay, opposite the free-dredging settlement of the town. During three days of the week these floating representatives of the happy fishers (each one named after its chief master, or the head of the family to which it belongs) are employed with the happy fishers themselves in what is called 'dredging for planting,' and the general cultivation of the ground. Young oysters are caught and transferred to places where they will find the most nourishment; samples are drawn up, like wine out of a cask, inspected, specimens tasted, and the remainder returned to the sea. The natural enemies of the oyster are sifted out and destroyed—especially the poisonous star-fish and the mysterious 'borer.' The former must be the old original regular oyster-eater, as it devours them without pepper, vinegar, bread-and-butter, or brown stout; while the latter—a creature like a periwinkle—stabs them to the heart, and leaves no sign but a few black specks upon the shell. The whole of this planting process is agricultural in its character; and it occupies about six hours on each of the three days. So important is it to the welfare of the happy fishing-ground, and so necessary is it not only to preserve the young oysters already distributed, but to import fresh life into

the plantation, that last year (in 1858) the sum of fifteen thousand pounds was invested by the free company in a young oyster-brood purchased from the coast of Essex.

The dredging for the London market, a task of about two hours' duration, is performed on the other three days of the week—generally on Mondays, Wednesdays, and Fridays. It is regulated by the two salesmen who represent that happy fishing-ground in the market of Lower Thames Street, and it is this regulation which prevents any violent fluctuations of price. The telegram received from these agents directs the number of bushels that are to be caught for market on each fishing-day, and the catching of these bushels is work that is equally divided amongst all the effective members of the little oyster-fleet. Each crew of three men goes off to its particular boat to dredge its particular 'stint' (the number it is to catch), and it is not allowed to draw up more than its allotted portion.

The first step in oyster-dredging is to put on an armour of warm clothing, in which it is extremely difficult for a novice to move or breathe. There are long worsted stockings to be drawn on over the trouser-legs; a pair of long, heavy, sewer-boots, reaching almost to the waist, to be forced on over these, a thick Guernsey shirt to be stretched over your body-coat, and an oilskin sou'-wester hat (like a dustman's) to be placed on your head. It is not easy to put on a Guernsey shirt without some care and practice, as the material is so highly elastic, that the arms are contracted to about the size of gun-bags, and the head-hole is like the mouth of a stone bottle. As the whole fabric is struggled into from the bottom upwards, there is a short period when you are enveloped in total darkness, when you feel your mouth full of wool, the grip of some tight though soft binding substance across your nose, and a strong sense of the impossibility of getting your head out through the chimney-pot above. When you emerge once more into the daylight, you feel flushed and rumpled, and you know that it requires some physical force to pull down the blue strait-jacket-like wrapper as far as your waist. In case of dirty weather, which is always provided for, you have a black, or yellow, salt, clammy oilskin overcoat thrown into your arms, which feels like the soddened skinny casing of some large fish.

About eight o'clock on a fresh October morning, the united company of free, happy-family oyster-fishers, plunge heavily and slowly through the stones on the beach, and proceed, in a thoughtful and deliberate manner, to push off their boats, and row out to their little oyster-fleet. They are all equal; they are all working together for

good. The father meets his son, who is apprenticed out of the domestic circle—perhaps to a brother fisher next door but two; the nephew meets his uncle, the uncle meets his cousin, the cousin inquires after his aunt, who is laid up with the lumbago; the grandson lends a helping hand to his grandfather; the brother-in-law is in attendance upon his relations by marriage, and the whole scene is a picture of quiet, profitable, patriarchal trade. A dozen happy-family shareholders will join to shoulder a rope, and pull off a barge-like boat that the tide has left high and dry. So confidentially do they lay their heads together to do this, that they look like a little open-air board-meeting held on the beach. Their whole movements seem to be regulated by a strong feeling that they have many centuries before them in which to do their work; and whatever accusation may be brought against them, there is no man who can say that he ever saw them in a hurry. They have lived amongst oysters, and thought of them so long, till, at last, it is possible to trace something of that steady, stationary shell-fish in their nature. They have fallen upon favourable ground, where they fatten and thrive; and they show no disposition to wander or move.

The ship to which we now row off is a small yacht-like smack, of about fifteen tons burden. Its deck is almost flush with the bulwarks, and covered with baskets, buckets, and nets; its aspect is brown and yellow; and its flavour is as decidedly salt and fishy as that of a free-dredging oyster smack ought to be. When our gray sails are set we skim away from our inner coast moorings, through the little busy fleet, which, under all canvas, is already at work within the pole-marked bounds of the happy growing-ground, until we come to our proper anchorage, as settled by the foreman, the deputy, and the jury-board. The bright green hills of Kent, and the island of Sheppey, half encircle us; the blue salt water comes rolling in from the North Sea at the mouth of the bay; the thin, pale, fleecy, gray, and golden clouds are flying over our heads; and the dull sound of boat-building hammers comes to us from the low black town.

Our nets are like fish—a thick trellis-work of undressed buffalo hide, washed almost white with repeated dipping; and the iron knife-like bar at the mouth is formed so as to scrape the oyster-beds. They are dropped, with their iron work, like small anchors; and, when they are hauled in, there are shelly heaps in each net, numbering about eight hundred oysters. The haul is emptied on to the soppy deck, the nets are again cast over, and the happy dredgers stoop

down in their tight, thick costume, with very red faces and red hands, to begin the labour of sorting.

A few whelks have come up in the haul; a few strips of green, glistening seaweed; a few cockle-shells, one of which contains some little animal, unknown to me, whose kicking claws are hanging out, as it seems struggling to crawl in out of the cold; a few snuff-coloured old oyster-shells, eaten through till they are like rusty rings; and a few muddy spider-crabs, who run quickly from between the crevices of the little shelly hill. The oysters are of all sizes, in their different stages of growth. Some are like blocks of flint, a mass that, perhaps, numbers thirty nearly mature oyster lives. Some shells are covered with little pearly counters, the size of shillings, which represent a brood of infant oysters, all less than a year old. Some shells are ornamented with red-looking pimples, which the happy free-dredgers call 'quats.' Some oysters come up highly clean and perfect in their formation, but not much larger than half-a-crown. These are generally the two-year-olds, and, with all the preceding varieties, they are pushed on one side by the dredger, while he picks out only the sightly fish of four years' growth, and casts them into his basket. His theory is that the oyster, if left alone, may live about ten years; and that it is extremely good eating at five years of age. He knows the five-year-old oyster by the layers outside the bottom shell. The little perfect yellow circle at the small end of the fan represents one year; the three successive brown pearly semicircles represent three other years, and the rough fringe round the outer edge represents the one year more. He is satisfied with the four-year-old oyster for general eating, and what he considers good the London market is compelled to take. His belief about the origin of the oyster is that the spawn, or 'spat,' as it is termed, will float, in the season of June and July (in this climate), upon the surface of the water until the sun has dried it into lumps. When these lumps reach a weight sufficient to sink, they fall to the bottom of the sea, where they find a bed which produces the nourishment they want. This is his natural history, and it is good enough for all practical ends.

When the sorting of the oysters is finished, and the baskets, which serve as measures, are filled with the picked fish, the refuse is swept back into the sea through trap-holes in the bulwarks. This latter process gives rise to reflections on the advantages of ugliness. It shows that an old oyster, with a repulsive exterior, may be pulled up

many times in a general haul, but with the certainty that it will be returned to the water, to live there till it dies.

The loaded baskets, after being dipped in the bay, for the purpose of giving the oysters a slight wash, are placed on one side, and the same work is gone through again, until the 'stint' (or allotted number) is caught. The vessel shifts its moorings once or twice in the course of a single morning's dredge, in order that the hauls may be mixed, and that the taste of the metropolitan oyster-eater may not be spoiled by feeding upon one quality, and that quality, perhaps, the best. When the proper number of baskets are filled, they are placed in the boat belonging to the smack, and rowed to one of the market-hoys that are anchored amongst the fleet. Each one of these hoys is capable of receiving about one hundred bushels, or nearly one hundred and sixty thousand oysters; and fourteen of these vessels, as before stated, are constantly employed going to and fro in the Whitstable happy fishers carrying trade. The baskets are lifted out of the boat into the hands of the hoy-sailors—a very fishy, patched, and soppy crew—and their separate hundred-weights of contents are tilted, like coals, into the long wet hold. A soddened inspector, who looks like a hoy-captain, is kneeling on the deck, and watching through a pair of spectacles the descent of the quantity and quality at the same time. When the last smack has delivered its required load, the market-hoys turn their heads due Billingsgate; the fishing-vessels are mopped up, are run to their coast moorings, and made tight for the night; and the happy fishers go on shore to dinner, the masters of their own time for the remainder of the day. Towards night they assemble at the 'Duke of Cumberland,' to hear and participate in the result of the last sale. The money is sent down by the two market salesmen in London, through the town agent of a Canterbury bank, and the sum is drawn out and divided by the managing jury of twelve. Their gains may fluctuate, being dependent upon profits, but it is generally found that if they want a pound on account, they know exactly where they can get it.

Without wishing to pry into free-dredging trade secrets, and overhaul the company's account-books, it is easy to see that they are not very hardly dealt with by nature and the metropolitan appetite, from certain signs that are not easily concealed. The joyous songs that come from the free-dredgers' chief tavern up to a late hour of the night, are not the sounds usually made by men who linger over an unsatisfactory pay-table.

ANOTHER WHITSTABLE TRADE.

IF it had not fallen to the lot of Whitstable to be celebrated for its oysters, and its company of 'free-dredgers,' it might have claimed a word of notice for producing that rarest of all workmen, the sea-diver. As the oyster exerts such an obvious influence upon Whitstable men, and lives at the bottom of the sea, it would almost seem as if this stationary shell-fish were the father of this other Whitstable trade.

The Whitstable divers may be from thirty to fifty in number, strong, stout, healthy, temperate men, who look like able-bodied sailors. Though not incorporated as a joint-stock company, and protected by a charter, like their friends and neighbours, the free-dredgers, they form themselves, by a kind of Whitstable instinct, into a working brotherhood, under the presidency and guidance of a captain —Mr Green. Mr Green is not a diver himself, and has never been under water, either in the helmet or the bell; but he directs the labour of those within his command, purchases their chances for a certain fixed payment before they dive, and acts generally like that very useful, but oftentimes much-abused 'capitalist,' without whom so few trades can be successfully carried on.

In stormy seasons, when the wreck of some heavily-laden homeward-bound vessel is an everyday occurrence round our fatal coast, the rooms at the King's Head Inn, in Whitstable, the house of call for divers, are very thinly attended, and the men, with their boats and apparatus, are hurried off in all directions to profitable work. Mr Green is then in the hourly receipt of telegrams from Lloyd's, or from private owners, requesting him to send 'four divers to Moelfre,' and four more 'to the Goodwin Sands.' If a vessel tilts over, as it did the other day in the Victoria Docks, Mr Green is communicated with to furnish help; and his divers are sometimes sent for from the West Indies, and distant, unknown seas.

These men go down to work in the diving dress, until they are sixty or seventy years of age. The dress consists of a waterproof body-suit, to keep them dry and warm; very heavily-weighted boots, to keep them steady and on their legs; and the well-known helmet with the glass-eye windows, which is furnished with air pumped from the boat above down an elastic tube. So hideous does this dress

appear to animals as well as to human beings, that every kind of fish flies from it in dismay. In going down in the West Indian waters, where sharks are painfully plentiful, the Whitstable diver found his unsightly armour a sufficient protection, and his large-toothed enemies darting away from him, without offering the slightest attack.

The depths that the Whitstable diver has most frequently to go to are ten to fifteen fathoms, or sixty to ninety feet. He sometimes ventures to eighteen fathoms (one hundred and eight feet), but seldom goes beyond, as the weight of water above his head impedes his movements, and the longer his air-tube is paid out, the more difficult it becomes to supply him with sufficient air. The sharp pain in the ears, as if a couple of quills had been thrust into them, is nearly always felt by the diver during the first three or four fathoms of his descent, though it goes off some little time before he reaches the deck of the sunken ship. This pain is caused by the condensed air in the helmet, and the sensation is precisely similar when the diving is performed in a bell.

When the vessel has settled down in a sandy bottom, it is preserved, for many months, from breaking up; and its position may be much the same as it would be when floating in calm water, if it be not tilted over by any under-current drifts. The light, of course, depends a good deal upon the depth and upon the nature of the bottom; but, where there is no chalk to give a milky thickness to the water, the diver pursues his work in a kind of gloomy twilight. By the aid of this, he can see and feel his way round the ship; but when he ascends to the deck, and winds down into the principal cabins, he finds everything pitch dark, and has nothing to guide him but his hands. This is the most difficult, and yet the most frequent labour he has to encounter; the danger being that, in a large vessel, where the cabin-stairs are deep, and the cabins are long and broad, he may get his air-tube twisted round some unfamiliar projection, and so squeeze off his supply of life from above. In positions such as this, he requires all his nerve and self-possession, all his power of feeling his way back in the exact road that he came. He may have got the precious casket, to which he has been directed, in his arms; but what of that, if he die before he can find the stairs? The cold, helpless masses that bump against his helmet, as they float along the low roof over his head, are the decomposed corpses of those who were huddled together in the cabin when the ship went down. A few of these may be on the floor under his feet, but only when pinned down by an overturned table or a fallen chest. Their tendency is upward—ever

upward—and the remorseless sea washes away the dead infant from its dead mother's arms, the dead wife from her dead husband's embrace. If the wreck be in the Channel, the small crabs are already beginning to fatten on their prey.

The diver disentangles himself from this silent crowd, and ascends the welcome stairs to the deck. The treasure he has rescued is hauled up into the attendant diving-boat; and he turns again to renew his work. He seldom meets with an accident, under water; never, perhaps, with death, and the chief risk he runs is from getting some heavy piece of ship lumber overturned on his long train of air-pipe. Even in this case he feels the sudden check and the want of air, gropes his way back to the obstruction, removes it, signals to his companions to be raised, and reaches the boat exhausted and alarmed, but not so much so as to give up his place in the trade. His earnings mostly take the form of shares in what he recovers. If fortunate, his gains may be large; if unfortunate, they may be small; but no man can grudge him the highest prizes it is possible for him to win. May Whitstable always have the honour of producing such bold and dexterous men as plentifully as she has hitherto done, and may they have the wisdom to keep what they get!

CHANGE FOR NUGGETS.

I HAVE done a very bold and sensible thing. I have thrown off the irksome tyranny of my currency doctor. It was only a few days ago that he felt my mental pulse, and declared me to be in a highly dangerous condition. My answer was, that I would take no more nostrums, pamphlets, tracts, and inky abominations; that I would listen to no more denunciations of rival systems; I would take nothing but the benefit of the waters of fact; and I went at once to the Mint, on Tower-Hill, to get them. I went to the Master of the Mint. Before I accepted his kind offer to show me his establishment, I held a short conference with the shade of Ricardo, the great political economist.

'I am about to look upon currency from a mechanical point of view,' I said to the shade, 'and I want your opinion upon the fixed price of gold I have heard so much of.'

'Gold fixes its own price,' returned the shade of Ricardo, 'because

of its uniform steadiness of value. It is for this rare quality that it is chosen as the standard basis of our currency.'

'But why,' I returned, 'is three pounds seventeen shillings and tenpence halfpenny always to be given for an ounce of gold, when all other commodities are always rising and falling?'

'Coinage labour,' he answered, rather evading the question, 'is given gratuitously to the public: you take your precious metal to the Mint, and the Mint returns you the same weight in the shape of sovereigns, even adding the necessary alloy, without making any charge for the process.'

'Then any digger,' I asked, 'may take his nuggets, however small, and exchange them immediately for money?'

'Theoretically, yes, but, practically, no,' he answered, 'for they receive no metal there, to save trouble, that is less in value than ten thousand pounds sterling. The Bank of England is their collecting agent for small amounts; being bound to purchase any gold that is tendered to it, giving notes or gold coin in exchange, after the metal has been examined and tested by the regular refiners.'

'This is under the abused act of 1844,' I said, 'which is since your time.'

'It is,' he replied, 'and there is no hardship to the Bank involved in the compulsory purchase. They issue their notes at once to the amount of gold (whether in coin or bullion) in their cellars; and they charge three-halfpence an ounce commission to compensate them for the delay of a week or so that takes place in the process of coining.'

'Thank you,' I replied; 'I feel considerably better; and I will now examine this mechanical process of coining.'

The first place that I was conducted to was the central office, where the ingots of gold are weighed when they come in from the Bank of England, or from other sources, and where a small piece is cut off each slab for the Mint assayer to test the whole by. A nugget of gold may be of any shape, and is generally an irregular dead yellow lump, that looks like pale gingerbread; but an ingot of gold is a small brick. After the precious metals have been scrupulously weighed in the central office, they are sent to the melting-house down an iron tramway. All the account-books in the Mint are balanced by weight; so that even where there is so much money, there is no use made of the three columns bearing the familiar headings of £ s. d. The melting-house is an old-fashioned structure, having what I may call the gold kitchen on one side, and a silver kitchen on the other,

with just such a counting-house between the two—well provided with clean weights, scales, well-bound books, and well-framed almanacks —as George Barnwell may have worked in with his uncle some years before he became gay. The counting-house commands a view of both melting-kitchens, that the superintendents may overlook the men at their work. Although the Mint contains nearly a hundred persons resident within its walls—forming a little colony with peculiar habits, tastes, and class feelings of its own—a great many of the work-people are drawn from the outer world. Dinner is provided for them all within the building; and, when they pass in to their day's work, between the one soldier and the two policemen at the entrance-gate, they are not allowed to depart until their labour is finished, and the books of their department are balanced, to see that nothing is missing. If all is found right, a properly signed certificate is given to each man, and he is then permitted to go his way.

The gold kitchen and the silver kitchen are never in operation on the same day, and the first melting process that I was invited to attend was the one in the latter department. The presiding cook, well protected with leather apron, and thick coarse gloves, was driving four ingot-bricks of solid silver into a thick plumbago crucible, by the aid of a crowbar. When these four pieces were closely jammed down to a level with the surface of the melting-pot, he seasoned it with a sprinkling of base coin, by way of alloy; placing the crucible in one of the circular recesses over the fiery ovens to boil. The operations in the gold kitchen are similar to this, except that they are on a much smaller scale. A crucible is there made to boil three or four ingots, worth from four to five thousand pounds sterling; and where machinery is employed in the silver kitchen, much of the work is done in the gold kitchen with long iron tongs that are held in the hand.

When the solid metal has become fluid, a revolving crane is turned over the copper, and the glowing red-hot crucible is drawn from its fiery recess, casting its heated breath all over the apartment, and is safely landed in a rest. This rest is placed over a number of steel moulds, that are made up, when cool, like pieces of a puzzle, and which look like a large metal mouth-organ standing on end, except that the tubes there present are square in shape, and all of the same length. The crucible rest is acted upon by the presiding cook and another man, through the machinery in which it is placed, and is made to tilt up at certain stages, according to regulated degrees. When the molten metal, looking like greasy milk, has poured out of

the crucible until it has filled the first tube of the metal mouth-organ, sounding several octaves of fluid notes, like the tone of bottle emptying, the framework of moulds is moved on one stage by the same machinery, so as to bring the second tube under the mouth of the crucible, which is then tilted up another degree. This double action is repeated until the whole blinking, white-heated interior of the crucible is presented to my view, and nothing remains within it but a few lumps of red-hot charcoal.

The next step is to knock asunder the framework of moulds, to take out the silver, now hardened into long dirty-white bars, and to place these bars first in a cold-water bath, and then upon a metal counter to cool. These bars are all cast according to a size, which experience has taught to be exceedingly eligible for conversion into coin.

From the silver-melting process I was taken to the gold-coining department, the first stage in dealing with the precious metals being, as I have before stated, the same. Passing from bars of silver to bars of gold, I entered the Great Rolling Room, and began my first actual experience in the manufacture of a sovereign.

The bars of gold, worth about twelve hundred pounds sterling, that are taken into the Great Rolling Room, are about twenty-one inches long, one and three-eighths of an inch broad, and one inch thick. As they lie upon the heavy truck, before they are subject to the action of the ponderous machinery in this department, they look like cakes of very bright yellow soap.

An engine of thirty-horse power sets in motion the machinery of this room, whose duty it is to flatten the bars until they come out in ribands of an eighth of an inch thick, and considerably increased in length. This process, not unlike mangling, is performed by powerful rollers and is repeated until the ribands are reduced to the proper gauged thickness, after which they are divided and cut into the proper gauged lengths. Having undergone one or two annealings in brick ovens attached to this department, these fillets may be considered ready for another process, which takes place after twelve hours' delay, in a place that is called the Drawing Room.

In this department, the coarser work of the Rolling Room is examined and perfected. The fillets, or ribands of gold, after being subjected to another rolling process, the chief object of which has been to thin both ends, are taken to a machine called a draw-bench, where their thickness is perfectly equalized from end to end. The thin end of the golden riband is passed between two finely polished

fixed steel cylinders into the mouth of a part of the concrete machine, which is called a 'dog.' This dog is a small, thin carriage, travelling upon wheels over a bench, under which revolves an endless chain. In length and appearance this dog is like a seal, with a round, thick head, containing two large eyes that are formed of screws, and having a short-handled inverted metal mallet for a hat. Its mouth is large, and acts like a vice, and when it has gripped the thin end of the golden riband in its teeth, its tail is affixed to the endless chain, which causes it to move slowly along the bench, dragging the riband through the fixed cylinders. When the riband has passed through its whole length, the thin end at its other extreme coming more quickly through the narrow space between the cylinders, causes it to release itself with a sudden jerk, and this motion partly raises the mallet-cap of the barking dog, which opens its broad mouth, and drops its hold of the metal badger that it has completely drawn. A workman now takes the fillet and punches out a circular piece the exact size of a sovereign, and weighs it. If the golden dump, or blank, as it is called, is heavy, the dog and the cylinders are put in requisition once more to draw the riband thinner; but, if the weight is accurate (and perfect accuracy at this stage is indispensable), the smooth, dull, impressionless counter, looking like the brass button of an Irishman's best blue coat, is transferred to another department, called the Press, Cutting Room.

The Cutting Room may claim the honour of being the noisiest place in the building. The finest oration, or the most melodious song that ever came from human lips, would be utterly thrown away in this department; and if any disciple of James Watt took to instructing pupils here in the mysteries of shafts, presses, and fly-wheels, it would have to be done through the medium of the deaf and dumb alphabet.

In this room, twelve cutting-presses arranged on a circular platform, about two feet in height, surround an upright shaft, and a horizontal revolving fly-wheel; and at the will of twelve boys, who attend and feed the presses, the punches attached to the presses are made to rise and fall at the rate of a stroke a second. The ribands, cut into handy lengths, are given to the boys, who push them under the descending punches, as sliding frames are pushed under table microscopes. The blanks fall into boxes, handily placed to receive them, and the waste—like all the slips and cuttings, trial dumps, failures, etc., in every department—is weighed back to the melting-kitchen for the next cooking-day.

Vigilance, as my guide impressed upon me, is necessary at every stage of gold-coining. If the rolling be not carefully done, the draw-bench will not rectify all its errors; if the draw-bench be not nicely adjusted, the thickness of the metal riband will not be equal, and the cutting-punches, however properly turned and tempered, would produce pieces of varying weight.

From the noise and clatter of the Cutting Room I was conducted to the elegant calmness of the Weighing Room, a department handsomely fitted up, and looking like a show-room for elaborate chronometers. Here is performed one of the most interesting and delicate operations throughout the whole Mint. Upon the counter, on ornamental iron stands, is a silent council of thirteen automaton balances, who pass judgment, individually, upon the work in the foregoing departments, and decide with unerring exactness upon the weight of the golden dumps. These automaton judges sit under glass cases, to preserve them from damp and dust, and they have the appearance of a row of French skeleton clocks. The golden dumps that are passed into the Weighing Room, still looking like the aforesaid Irishman's brass button, are distributed amongst the balances, passing down a receiving slide on to a strip of steel. This strip of steel is made to advance and recede at certain intervals, perhaps of a quarter of a minute, and at each advance it pushes a blank on to a beautifully poised scale-table, sensitive to the slightest variations of weight. For a few seconds the machine appears to reflect, and then the golden dump is gently pushed off the scale by the arrival of another piece on the steel slide for judgment. The first, if 'heavy,' disappears down the outer one of three flattened tubes; if 'light,' down the inner one; and, if quite correct in weight, down the centre compartment. By careful manipulation, much of the work is now made to fall in the medium boxes, thereby effecting much saving in the annual expenses of the Mint—a reform that is attributable to the present working master and his superintendents.

From the Weighing Room I followed the dumps that were declared to be in a perfect condition to a department called the Marking Room, where they received their first surface impression. This room contains eight machines, whose duty it is to raise a plain rim, or protecting edge, round the surface circumference of the golden blanks. This is done by dropping them down a tube, which conducts them horizontally to a bed prepared for them, where they are pushed backwards and forwards between two grooved 'cheeks' made of steel, which raise the necessary rim by pressure.

From this department I am taken by my guide to a long bake-house structure, called the Annealing Room. Here I find several men-cooks very busy with the golden-rimmed blanks, making them into pies of three thousand each, in cast-iron pans covered with wrought-iron lids, and closed up with moist Beckenham clay. These costly pies are placed in large ovens, where they are baked in intense heat for an hour, and then each batch is drawn as its time expires, and is not opened before the pans become cool. The gray plastic loam which was placed round the dish is baked to a red crisp cinder, and the golden contents of the pie are warranted not to tarnish after this fiery ordeal by coming in contact with the atmosphere.

I next follow the golden annealed blanks to the Blanching Room, where they are put into a cold-water bath to render them cool; after which they are washed in a hot weak solution of sulphuric acid and water, to remove all traces of surface impurity. Finally, after another wash in pure water, they are conveyed to a drying-stove where they are first agitated violently in a heated tube, then turned into a sieve, and tossed about out of sight amongst a heap of beech-wood sawdust, kept hot upon an oven. After this playful process they are sifted into the upper world once more, and then transferred to trays, like butchers' trays, which are conveyed to the Stamping Room.

The Coining Press Room contains eight screw-presses, worked from above by invisible machinery. Below, there is a cast-iron platform; and above, huge fly arms, full six feet long, and weighty at their ends, which travel noisily to and fro, carrying with them the vertical screw, and raising and depressing the upper die. In front of each press, when the machinery is in motion, a boy is sitting to fill the feeding-tube with the bright plain dumps of gold that have come from the sawdust in the Blanching Room. On the bed of the press is fixed one of Mr Wyon's head dies—a perfect work of art that is manufactured in the building; and the self-acting feeding apparatus—a slide moving backwards and forwards, much the same as in the delicate weighing machines—places the golden dumps, one by one, on the die. The boy in attendance now starts some atmospheric pressure machinery, by pulling a starting line; the press and upper die are brought down upon the piece of unstamped gold that is lying on the lower die, along with a collar that is milled on its inner circumference, and which closes upon the coin with a spring, preventing its undue expansion, and at one forcible but well-directed blow the blank dump has received its top, bottom, and side impression, and has become a perfect coin of the realm. The feeder advances with steady regularity, and

while it conveys another dump to the die, it chips the perfect sovereign down an inclined plane; the upper machinery comes down again; the dump is covered out of sight, to appear in an instant as a coin; other dumps advance, are stamped, are pushed away, and their places immediately taken. Some sovereigns roll on one side instead of going over to the inclined plane, others lie upon the edge of the machinery, or under the butcher's tray that holds the dumps, and the boys take even less notice of them than if they were so many peppermint drops; the heavy mass of black iron-work all over the room keeps moving steadily from ceiling to floor; a second, and all that a Dorsetshire labourer is worth in a year, is sent rolling carelessly about the platform; a dozen seconds, and all the same Dorsetshire labourer will ever earn in this world is following the treasures that went before; five minutes, and the purchase-money is created of a landed estate; a quarter of an hour, and you may form some idea how easily fortunes are made; an hour, and any banker would give a partnership for the sweepings of the trays; a quarter of a day, and Daniel Dancer would have danced about in the madness of joy; a day, and he would have had to have been removed by the soldiers on duty at the point of the sword.

The workmen collect these different heaps of sovereigns and brush up the scattered money, that the joint product of metal, advanced mechanism, and careful art, may pass its last examination before it is sent into the outer world for circulation as perfect, unexceptionable coin. The metal has passed no locked doorway in its progress without being weighed out of one department into another, and it undergoes yet one more weighing before it is placed into bags for delivery to the Bank of England or private bullion holders, and consigned to a stone and iron strong-room, containing half a million of coined money, until the hour of its liberation draws nigh. As I saw the workmen tossing the precious burden about in copper scales, and taking pinches of bright new sovereigns in their hands with no more respect than if they were white-heart cherries at twopence a pound, I could not help thinking that familiarity must breed contempt, and that the weighers will run through their property, when they come into it, with quite as much spirit as the most celebrated bloods about town.

ALDERSHOTT TOWN AND CAMP.

PART I.

WHATEVER Aldershott may have been in the former history of its country, it is now a place which the British soldier has thoroughly taken by storm. He has squatted (in obedience to superior orders) upon its peat and sandy common; he has pitched his white tents in groups upon the scanty patches of grass, until they look, in the distance, like conjurers' cups arranged upon a green baize table; he has had planted his long black rows of dwarfed wooden huts down the gravelly slopes, like streets in the early days of some English colonial settlement; and he has had built a long and lofty range of clean, new, yellow-brick barracks which overshadow the little mushroom town that has risen up hurriedly to meet and trade with them.

Along the High Street of this military village runs a single line of railway, devoted to the carriage of coal and building material for the large barrack streets that are still being erected for the accommodation of future cavalry regiments. Every hour of the day a train of luggage trucks is panting along this tramway, and the only wonder is, that the driver who conducts the engine is not attired in some variety of military undress costume. The omnibuses that come in at intervals from the different railway stations are more often loaded with scarlet heroes in the shape of non-commissioned officers, than with the dingy-coated civilian who is always smoking the pipe of peace. The old familiar face of the Hansom cab is seen in the one main street of this mushroom village, as well as its companion vehicle that runs upon four wheels. A little search will discover a well-stocked stable-yard, as full of these metropolitan conveyances as any cabman's mews in town.

The old red-brick poor-house has been taken possession of—has been legally purchased, I suppose, from the parochial authorities—as an hospital for invalided soldiers. Walking in a small, dusty garden, or sitting on benches under the shadow of the side walls, are a number of convalescents, dressed in light blue serge trousers, jackets, and night-caps, which make them look like comic performers of the Pierrot class in a circus of French horse-riders.

The mushroom village does not seem able to increase its building accommodation fast enough. Twenty thousand men (the number at present * stationed in barracks, huts, and tents) require amusement; to say nothing of the officers, who require various little luxuries, and furniture for their quarters. Scaffold-poles and unfinished brickwork are seen sprouting up at each end of the straggling mile of shops and houses, while the ringing of trowels and the noise of hammers striking nails into wooden planks mingle with the incessant roll of drums from the barracks and the blowing of bugles from the camp beyond an intervening hill. Certain enterprising speculators are not content to wait for the slow, substantial work of bricklayers and stonemasons, and they have erected little road-side zinc structures in which to carry on their commerce, imported from an emigrant's house depôt in London in a few hours, and put up in a single night. The wooden shed is not unrepresented in the town, any more than in the camp, and the whole line of houses—large and small—is joined together in some places with clothes'-lines of dangling stockings and shirts. Bright, new, glaring shops are opened for active business before they are painted or finished; and the stock-in-trade of one furnishing draper (the chief warehouseman in the place) has fairly oozed out into the road.

The titles of most houses have a warlike character, and those who do not advertise themselves as being 'by appointment to the camp,' attract attention by sticking up 'Sebastopol' or 'Waterloo House,' the 'British Hero,' and the 'Crimean Arms.' The road in front of these places is either the dusty highway which has few traces of country left; a patch of the mangy common which still exists to show the miserable little plot of village that answered to the name of Aldershott half a dozen years ago, or a layer of egg-shaped stones thrown down in a swampy piece of ground before the crowded doors.

Towards evening the British soldier comes out to be amused. If he is quartered in the barracks, or the huts, and is not under canvas, nor yet upon guard, he is at liberty up to half-past nine P.M., at which time he is summoned back to his quarters by the firing of guns, and the sound of regimental bands. A special order will allow him to enjoy the seductive gaieties of the town long after this time, but these privileges are granted to very few. If he neglects to return to his disconsolate regiment at the appointed period, he suffers for it the next day, and several following days, by the extra exertion of 'pack drill,' if not by a more severe punishment; for the shadow of the hate-

* July, 1859.

ful 'cat' still hovers over the pet military settlement, still comes up through the dust and theatrical glory of a sham field-day, still dims the brightness of the medal and the cross.

About seven o'clock, P.M., the British soldier rushes into the mushroom town of Aldershott for entertainment, and the mushroom town of Aldershott responds most vigorously to the call. The private soldier is able to save about threepence-halfpenny or fourpence out of his thirteenpence a-day, and this, by a mutual arrangement with some comrade who is on duty for that particular night, is swelled into sevenpence or eightpence. A party of six men will sometimes club together, making a common fund of their individual savings, and this will give the one man out the command of about two shillings.

When two or three thousand soldiers are prowling about, with only two or three hours of time before them, and only fourpence each in their pockets, it is not surprising that a number of beer-shops should strive to commend themselves to their notice. There are wooden beer-shops and brick beer-shops, central public-houses (those immediately opposite the leading barracks, and the road over the hill into the camp), and zinc beer-shops, pitched at the extreme end of the present town-line. There is a very primitive, early Australian mingling of occupations exhibited in some of these mushroom taverns, and while it is probable that you could have your hair properly cut by some of the landlords who draw a rather muddy ale for the refreshment of the British soldier in his hours of relaxation, it is certain that one public-house displays an announcement in its windows about photographic likenesses being taken within at a moderate price. There have been many combinations over the tavern counter before this, but it was reserved for Aldershott to get rid of the conventional sandwich which has hitherto—for fourpence—gone with the glass of ale, and to substitute a doubtless highly artistic portrait in its place.

No tavern, however small, has the boldness or the folly to attempt to attract the British soldier, without providing him with a room in which he can either sing, or hear singing—can either dance, or be amused by professional dancers. To obtain this very necessary hall of entertainment, nearly every back garden has been covered over with a rude, temporary structure, having something of the camp-hut in its composition, and something of the travelling show. Those houses that have been denied the advantages of a back garden are driven to erect a side building, which sticks out, like a huge wen, from the main establishment. Some have pressed the first-floor rooms into this

semi-theatrical service, and a small stage with a very hastily painted back-scene, and two wings of forest-trees, like nothing known by botanical students, are erected at one end of the largest apartment, covering about the same space as a very small shop-front, and being approached by a short flight of moveable steps. In these rooms the British soldier assembles in happy, half-drunken, beer-table rank and file, and in the intervals between the appearance of the 'Infant Teresa,' who has just gone through the Highland fling, and the appearance of 'Madame de Pumpadoor, the great English soprano,' he is gratified by witnessing a solemn amateur hornpipe, performed by a corporal with two medals dangling from his breast, whose motions are directed by the harmony of an ear-piercing fife and jingling piano, and whose bronzed and bearded face, when he leaps up every now and then, disappears amongst the 'flies,' like the automaton skeleton's head in the street Fantoccini theatre.

Not far from this entrancing temple of recreation on the first floor is another temple on the ground floor, the programme of whose entertainments, placed upon a board outside the door, in coloured, ill-drawn letters, comprises singing, hornpipes, and Ethiopian serenading up to the military time of half-past nine, and 'dancing after gun-fire.' Looking through the open door into a kind of tent, with a stage at the bottom, you see a solid square of military audience, the scarlet coatee of the Guards relieving the half-naval blue hussar-like uniform of the Royal Artillerymen, and the more sombre green dress of the regular Rifle Corps. The undress cap which these latter soldiers wear in their hours of ease contrasts very favourably with that fearful shako, whose body is like a patent leather crucible or pipkin, and whose summit, at the fore part, is ornamented with a round mossy black ball, that looks like a property apple placed upon the bonnet of Tell's (theatrical) child, and which must be a fruitful source of temptation as a target to those who are anxious to try their skill with the rifle. Heavy as the leather shako is, when weighed in the scale against other purgatorial penal hats, it must certainly be considered light and airy by the side of the artillery rough beaver head-gear. This drum-shaped military hat, which looks like a lady's hand muff, is heavier and warmer than even the immortal grenadier's cap. They are all a protection against sun and rain, and they all need a protection against themselves.

The attractions of these two concert-saloons are not sufficient to silence the voice or dim the lustre of the Apollo Music Hall, which, having the rather unpromising frontage of a labourer's cottage (part

of the original village), suddenly invested with a liquor and music license, and being separated from the main road by the mangy bit of swampy common before alluded to, is compelled to hang out rather prominent signs of the entertainment and conviviality to be found within. A chandler's shop, not far from this abode of melody, has set up a tap of drinkable beer, and though it has not yet been able to bud into the full honours of the Aldershott music-halls, it is not without a little knot of patrons bearing the true military stamp. The eggs, the bacon, the butter, tea, and cheese, and the loaves of bread, are huddled in a heap in a small window and a few shelves on one side of the shop, while all the available space on the other side is turned into a small red-curtained tap-room. The stray child who goes to this mongrel shop for its mother's breakfast or tea is introduced with gaping mouth into all the humours of rollicking military canteen life, and is made to take a sip out of a mug of ale by a staggering hero in a scarlet coat, while its packet of grocery knick-knacks is being prepared.

The British soldier is not entirely of a musical turn, and though he is seen through many tavern-room windows standing up against a fireplace, with his eyes fixed upon the ceiling, in a rapt and enthusiastic manner, singing a sentimental song for the amusement of his comrades, or leading a wild chorus in which they are all endeavouring to join, he likewise haunts the road-side in little knots, which look, at a distance, like beds of geraniums, and he marches in along the dusty main road in groups of ten or twelve, as if he had been for an evening walk to Farnborough, or some adjacent town.

Scarlet does not always consort with scarlet, nor green with green; and a Stirlingshire militiaman, in his white jacket, plaid trousers, and Scotch cap, relieves the monotony of colour by walking between two green riflemen and an artilleryman in blue.

A close examination of the many passing sun-burnt faces shows how largely the Irish peasant has, at some time or another, taken the Queen's shilling, as well as the agricultural operative of our provincial farms and fields. The Scotchman is there, in spite of his reputed caution and love of money; and the Yorkshireman is sometimes content to forget his proverbially assigned keenness, and to mount guard, fire cannon, and practise with the sword. One class, however, has never yet been represented in the British army, and probably never will be, and that is the English Jew. Whatever trouble or madness has fallen upon the chosen people of Old Jewry, in this country, since the bad old times when they were persecuted by half-savage kings,

there has never yet been any young runaway sprig of Israel who was weak enough to rush into the arms of that model dancing-master-looking, faultlessly-dressed sergeant, who stands at likely street corners with those fluttering ribbons and that light and elegant gold-headed cane. He has been weak enough to get into Parliament, but he has never been weak enough to get into the ranks.

It is an affecting sight to see a couple of soldiers staggering under the too heavy weight of their detestable shakos, and not, of course, under the strength of the Aldershott ale, supporting each other, although belonging to different corps, to the best of their ability; wearing their oppressive head-dresses tilted over to the backs of their heads (of course, for relief), regardless of the even set of a breast-belt (of course, for the same reason), their eyes dull and sleepy, their steps uncertain, their mouths vainly endeavouring to relate some barrack story, and their hands ever ready to give the proper mechanical military salute to every person whom they pass. As the evening advances, many groups of these suffering military pedestrians may be seen upon the Aldershott roads, the stiffness of the tried soldier, in which they started with such pride from their barracks, having entirely melted away, and their bodies being as limp as those of the rawest recruit who has never had the advantage of a day's effective drill. They are not always the latest to get into hut or barracks, although so seemingly uncertain in their steps. Sometimes they escape the sentries, and roll into their own proper beds; at other times they pass their slumbers in a cell of the guard-house, to dream, towards morning, of 'pack-drill,' or, perhaps, the 'cat.'

Mingling with these men for a moment, but hurrying by them with the dignity of a heavy day's good work done, and done well, and the sense of another heavy day's work to follow to-morrow, will be half-a-dozen stonemasons and bricklayers, speeding home with their empty dinner-basins swinging in handkerchiefs from their hands. No signs of fraternity are exchanged between these soiled and powdered labourers and the steady or unsteady red, white, blue, and green groups of lounging heroes whom they pass. They each belong to different worlds, and they know it.

The principal resort of the 'crack' soldiers and the non-commissioned officers (corporals, sergeants, sergeant-majors, and such like) is a crimson music-hall attached to the principal hotel in the mushroom town. This place is well ventilated by numerous windows that open on a small side street, and is fitted up with a stage, the chief object at the back of which is a clear-faced, full-sized circular clock. The

moment the hands of this clock draw near half-past nine P.M. the amusements (consisting chiefly of singing) work up to a climax; allusion is made to the approach of 'gun-fire' from the stage; an acrobat boy, in crimson leggings and spangled body, makes himself very busy in washing the empty glasses of the drinkers; while his father, a middle-aged acrobat, in a precisely similar dress, is extremely active in performing the duties of a waiter. The leading comic singer having sung his last popular song, for that night, to an almost exclusively military audience, comes down from the stage to exchange congratulations all round, with his scarlet and blue admirers (after the style so much in fashion at distinguished London music-halls); the hands of the stage clock reach the expected period, the gun fires, the bugles sound, a brass band at the opposite barracks begins to play, the soldiers slowly disperse, having a quarter of an hour's grace before them; and a long interval takes place in the amusements of the crimson saloon, until its civilian patrons begin, somewhat later, to assemble.

Following the last military straggler, I pass a little knot of artillerymen, who are taking an affectionate leave of two young ladies (without bonnets) at the corner of the street, and ascend the gravelly hill before me, on which stand the huts of the staff-officers of the camp; for I have arranged to pass the night in the quarters of my friend, Lieutenant Hongwee, of the Antrim Rifles.

I reach the brow of the hill in the dark, leaving the row of lights of the mushroom town beneath me, and behind me, and coming upon long, silent, black lines of huts, varied and divided by broad gritty roads of stony gravel, and surmounted by a wide semicircle of streaky orange horizon in front.

Before I have found out the line of huts, and the particular 'block' in which I am to pass the night, I am challenged half a dozen times by half a dozen sentries, but as I reply, according to my instructions, 'A friend,' I am not arrested, run through the body, nor shot through the head.

I pass a few glimmering lights in hut windows, and a few murmuring huts, where the men are divided off in small parties to sleep, and find my lodging on the tented field at last.

Lieutenant Hongwee's quarters (like the quarters of every subaltern) are not sufficiently commodious to accommodate two persons with comfort; but that young and promising officer is taking his turn as the captain of the watch (a twenty-four hours' guard-house duty which falls to his lot, perhaps, once in six months), and I have full

permission to usurp his bed. If any difficulty should occur (which is not anticipated), I am furnished—no doubt, against strict military rule—with the 'parole' and 'counter-sign.' 'Romsey' will carry me through anything (except officers' practical jokes) up to the solemn midnight hour, and 'Stockport' will be of equal service to me at any time afterwards.

PART II.

AFTER being disturbed by a variety of noises throughout the night, the clanking of arms, and the talking of the men on guard in the adjacent guard-house, the squabbling of the sentry when he took a drunken straggler into custody, and the mysterious humming of the telegraphic wires, which stretch across the line of the camp, and form a gigantic Æolian harp; the dweller in the hut is thoroughly awakened at five o'clock A.M., by the sound of bugles arousing the men for the day. The officer seldom makes his appearance before the hour of ten A.M., having nothing to do before the parade duty at eleven A.M.; but the men are considerately beat into bed at the almost infantine time of half-past nine at night, and they are punctually beat up in the morning to be stirring with the lark.

The hut of a subaltern may be described in its outline as part of a coal-shed, a corner in a black, tarred wooden block that is all ground-floor. These huts are built of rough, unseasoned planks, too thin to keep out the cold in winter, or the heat in summer. The temperature, even at five o'clock on a July morning, is that of a bakehouse shortly after the batches of bread have been drawn. The sun succeeds in coming through the slender roof, if it does not appear in actual beams upon the floor.

The taste of a young officer may lead him to decorate this cupboard in any variety of style, but the size of the area to be decorated will impose a limit on his fancy. There is room for a small iron bedstead, a table, a washstand, a chest of drawers, and two chairs; which will leave about a square yard of flooring for exercise and the toilet. A fire-place and one small six-pane window complete the fittings of these huts, which look like the lodgings let to single young men about Stepney, at two shillings a-week, or the summer-houses that used to be erected in the grounds of the market-gardeners at Hoxton.

A 'block,' as it is called, contains six compartments, each one of which is considered to be sufficient for a sub-officer's sleeping quarters. A captain takes two of these cupboards; and a field-officer the whole block of six.

Standing upon the brow of the hill at the highest part of the South Camp (on the other side of which lies Aldershott Town), and looking towards the north, the whole encampment lies in a hollow bow before you. At your side is the hut of General Knollys, the commander-in-chief at the camp, who saw a night attack about five and forty years ago. The ostensible design of Aldershott is the practical education of the soldier and his officer.

The huts of the South Camp are arranged in alphabetical lines, or rows, for the sake of easy reference, and they stretch down the gravelly slope towards the north, in many broad black parallels, for full half a mile, until they reach the sandy flat that lies between them and the North Camp, on the further ascent. This flat is divided by a canal that is crossed by a pontoon bridge supported by tubs; the real artillery glowing-red pontoons lying high and dry at the side, looking like gigantic German sausages of a light and brilliant hue. A winding gravelly pathway crosses this desert for nearly a mile, and then you enter the corresponding black lines of the North Camp huts, which look thinner from the distance, and ascend for another half mile upon a more moderate slope.

A line of these huts, in which, perhaps, the officers and men of two different corps may be quartered, is constructed in divisions, each one of which is exactly like all the rest.

There is a bread-hut, a meat-hut, and a library-hut; a men's school-hut, a children's school-hut, which latter looks like the national schools in many small villages. There are a number of officers' sleeping-huts, placed back to back, and also a number of men's sleeping-huts, in the same position. There is an orderly-hut and a guard-hut, the latter provided with several cool though dismal cupboards, that are called cells, in which are confined the refractory privates who have fallen under the too tempting dissipation of Aldershott Town. There is the women's wash-hut, at which stray pedlars' carts, that are passing through the country, are observed to stand, without any visible driver, for a very long period of time; there is the family-hut, for the married men, and a long canteen, facing the yellow, burning, gravelly road, where the soldier indulges in a little half-baked conviviality during the middle of the day. There is the armourers'-hut, a brick edifice, with a fluted zinc roof; the shoemakers'-hut, in which a num-

ber of soldiers are at work, with cobblers' shirts and military legs; and there is the tailors'-hut, where our future field-marshals are sewing on a button, or repairing a yawning rent. There is a hut that is labelled 'Ablution,' which is very good language for a building containing a long bench and a number of bowls, where the common soldiers go to wash. There is an officers' mess-room hut, a long, black, wooden building, containing many small windows adorned with crimson curtains; and there is a non-commissioned officers' mess-room hut, in which the corporals and sergeants are accustomed (when single men) to refresh their exhausted bodies. There is a cook-house hut, a fair-sized fluted zinc building, which is filled with steaming ovens, containing many shapes of beef, a roaring furnace, a number of perspiring half-military greasy cooks, presided over by a stiff corporal, who orders the addition of a little salt, or the uncovering of a pannikin, as if he were leading on to glory. From the open doors of this dinner-magazine is wafted a fragrant breath of onions and cabbage, a perfume that carries you, in imagination, to some of the back streets of Paris on the noon of an August day.

At the back of the cook-house hut is the Quartermaster's store-hut, a precisely similar fluted zinc building, that looks like a railway goods depôt, being devoted to boxes, packages, and bags. The hospital-huts are placed by themselves, being distinguished by white-painted doors. They hold about a dozen beds each, and some of the French circus-like Pierrot convalescents are lounging about them, as they were lounging about the red-bricked Elizabethan hospital in the town. These are the main features of a line of huts, at any part of the camp.

Still standing upon the hill by the General's hut, and looking across the camp, you can see to your right, towering above the huts, the shed-like church of the South Camp, and, further on, the shed-like church of the North Camp; the white, gleaming, cup-shaped tents of the Royal Artillery, who are roughing it under canvas, and in the distance, across the common, an enclosed racket-ground, which looks like a large stone dust-bin. To the extreme left are the distant tents of the guards, brought out in pleasant relief against a green back-ground of foliage. Trees are by no means plentiful at or near Aldershott Camp, any more than grass, and very few of the hot, dusty elevations can boast of a top-knot, or a whisker of verdure.

I pursue my survey by walking through the camp, and discover a telegraph-office hut, a fire-brigade hut, a post-office hut, and a luggage-office hut. The latter belongs to the South Eastern Rail-

way Company, who are commencing great railway works in connection with their line to this camp, an important, although a quiet, and, as far as the country is concerned, an inexpensive step on towards the perfection of the national defences. Close by this building is a privileged yard, conducted under military law, for the hire of broughams, dog-carts, and the ubiquitous Hansom. There are certain camp-followers which dog the steps of the soldier, wherever he goes, from the general-in-chief to the lowest private in the regiment.

Towards nine o'clock in the morning the sounds of many military bands of music begin to be heard, and the shrill whistle of the fife comes from the open windows and doors of huts, as well as the more mellow tone of the clarionet. Bodies of men, in different uniforms, appear in oblong masses upon the burning stony slopes, and artillery soldiers, driving heavy waggons or field-trains, pass along the cross-roads from side to side. Heavy dragoons in thick, muddy, unbraced trousers, and very dirty shirts, with bronzed faces, chests, and arms, appear with pails and cans from behind the tarred huts, and disappear again. A company of bugle-youths plunge out from a side lane, followed by a little girl child, who strides wildly to keep step with them. Children play about the red-hot gravel, regardless of sun-strokes, amusing themselves, in one instance, with a worn-out battered shako. Stern warriors are seen through laundry-hut windows, nursing babies among the baskets of clothes, or drinking tea out of large blue saucers. Other stern warriors come out attired in all the regulation glory of thick, warm, close-fitting costume, with the glass standing at one hundred degrees in the shade—even keeping to that wonderful instrument of military torture, the immortal stock. For two hundred years this ingenious, unbending variation of the old cravat has gripped the soldier by the neck, and there is no prospect, at present, of its relaxing its hold. It has many things to recommend it. When a regiment, from overwork, or an insufficiency of food, presented a sickly appearance, by obliging the men to tighten the stock as much as they could bear without suffocation, a ruddy glow was produced in the face, and every sign of a full habit of body. These instruments of clothing, before now, have been made of black horse-hair, tolerably hard, and transformed into a collar as firm as iron by the insertion of a slip of wood, which, acting on the larynx, and compressing every part of the neck, gave the eyes a wonderful prominence, and the wearer an almost supernatural appearance of healthy vigour. The present military stock is not quite as bad as this, although it is bad enough.

A squad of raw, unformed lads is marched out for drill, showing the material that the recruiting sergeant is driven to enlist with the Queen's shillings, in default of better youths, or men. They drop out of the ranks even on an ordinary field-day, and on real and active service they would die, like children, at the road-side. They have been plucked too early for the game of war, and they are as worthless as all untimely fruit.

A sombre-looking soldier is walking slowly down one of the lines, carrying a bag in one hand and a can in the other, and followed by a shabbily-dressed woman, who is nursing a sleeping child. His head is bent down, and he has no remark to make, as she pours some low, ceaseless story of wrong and suffering into his ear.

By this time I thought it right that I should pay a visit of condolence to my friend Lieutenant Hongwee, who had been compelled to pass the night in dismal communion with a whiskey-bottle, at the regimental guard-house of the Royal Antrim Rifles. I looked round the apartment. Two Windsor chairs (the everlasting regulation chair all through the army), a dirty table, a fireplace, and deal shelf, were all the furniture. A bit of composite candle had burnt out and guttered down in a champagne bottle, and the shutter of the window at one end of the hut was kept open with a short rusty poker. The bare walls were ornamented with fancy cartoons, mottoes, and initials, drawn by idle, yawning heroes, with pieces of burnt wood; and the few pegs that were intended to support any superfluous out-door military gear, were cut to pieces with sword-thrusts. The floor was blackened with accumulated dust, and the whole place, which was about ten yards long and five yards broad, looked like a good dry skittle-ground without the skittles.

'My poor friend,' I said, with compassion, looking at a tin machine that resembled a number of large shaving-pots and boxes rolled into one, 'what have we here?'

'Don't allude to it,' he said, with a sudden spasm, 'you see my dinner-pan.'

'Your what?' I asked.

'My dinner-pan,' he answered. 'To add to the needless torment of the wretched officer on guard, his mess-man—his club-steward, whom he liberally pays—declines to send him his proper food. His regimental servant goes up to the mess-room, and brings down the concrete structure now before you. The bottom of the can contains the soup, a greasy broth; a box above contains potatoes and peas floating together in more greasy broth; the next step in the pyramid

is another box, full of a dry and leathery grilled beef-steak; and the apex is a metal pill-box containing pepper and salt.'

The first thing we did, when the guard was properly relieved, and an unfortunate Highland ensign was imprisoned in the place of Lieutenant Hongwee, was to visit Truefitt's. Truefitt's is a living example of how a good fight may be won by combination, courage, and determination. Who would care to live without his 'toilet club'? The great barber has got his hut—his little oasis of luxury—firmly planted in the desert under the constant patronage of military men, far more than the constant regulation of military law. Faithful camp-follower—true and reliable as the Hansom cabman, he is found, in the hour of danger, at his post. What would the regulators of the British Army do without such a comforting retreat?

Why are private soldiers warned off from this agreeable lounge by a notice outside the door, which says, 'For officers only?' The private soldier is not in the habit of having his hair worried with strange and varied brushes, nor of having it pacified afterwards with alchemical ointments. The private soldier is not in the habit of paying half-a-crown to have his hair clipped at the back, washed with egg-flip, watered with a watering-can, his beard shaved and his pocket-handkerchief scented with the latest perfume known. Perhaps it was thought that private soldiers sometimes come in for legacies, and go in for the genteel thing, vastly, and the notice was meant to provide against such a contingency. Many officers would have to be excluded, too, if they had no property, and were compelled to live on their pay. Five shillings a-day for an ensign, and six shillings for a lieutenant, will not go far in mess-dinners and tailors' bills, much less in toilet-clubs.

Passing out of this fragrant warehouse in the desert, on our way to visit one of the encampments, we came upon half-a-dozen artillerymen, who were undergoing the punishment of 'pack-drill.' They were the drunken prisoners of last night, who, after being tried before their superior officers in the orderly-room, were condemned for a certain time to walk the day in the full heat of the sun, in their heaviest marching clothes, and with their full marching 'kit' upon their backs. They had now been walking up and down for some time, and their legs seemed to give way in their heavy jack-boots.

Going across the black lines of huts, our ears were suddenly saluted with a terrific outburst of military melody, and looking in one of the quarter-masters' store-rooms, we found about thirty men and boys, of all sizes, furnished with sax-horns of curious shape, and

ophicleides as large as pumps, blowing up the roof with a popular quick-step march. The conductor, with the most vigorous action, was endeavouring to keep them in order, as they stood amongst the boxes and packages of their temporary practising-room. One short-necked, full-blooded performer, whose back was towards me, caused his neck to contract and expand in such an extreme manner, while supplying his unwieldy instrument with air, that I expected every moment to see him burst, and his head drop out of sight into his opened body. I never saw anything like it, except the left cheek of an old trumpeter, which from long use, and from being nothing but thin skin, used to sink into a hole when his instrument was at rest, and blow out in an almost transparent bladder when he began to play.

Leaving this close-packed hall of harmony, we made our way to the theatre, a building that stood fairly in our road to the canvas quarters of the artillery. A wooden hut, with several entrances, looking like a travelling show that has squatted upon common land; an audience portion, capable of seating about a hundred persons; an orchestra, like a large tank; a stage such as is generally run up during a violent private theatrical fever in a back drawing-room; and a property-room, in which the hollow mockeries of the drama are combined with the solid realities of a habitation and a laundry, comprise nearly all that need be described of the well-known Theatre Royal, South Camp, Aldershott. It was manned, during the day, by one male attendant, who managed it as if it had been a ship, hauling up the scenes like sails, and putting it in trim working order for the performance of the evening.

A quarter of an hour's walk brought us at last to the Royal Artillery encampment. There was a large square enclosure full of horses, like a horse fair, railed in with ropes and stakes, and surrounded by an irregular line of tents. A man in military trousers and a dirty shirt—the amateur blacksmith of the regiment—was hammering out a horse-shoe upon an anvil, which stood full and unprotected on the sand, under the noon-day sun. Not far from this workman was a camp fire, over which was cooking the dinner of the men. A couple of narrow ditches, first cut in the earth in the form of an equal cross, and then filled full of wood, furze, or any dry rubbish about, that will burn; a covering of sheet-iron strips placed over these ditches; a peat chimney built in the centre, for the purpose of drawing the fire below; the wood or furze set alight, and the kettles, like pails, placed along the iron plates on the side where they are most likely to avoid the smoke and boil the quickest; and the

rough-and-ready camp oven is complete. When the lids of the pail-kettles are lifted up, bushels of potatoes, spongy masses of cabbage, and irregular blocks of heavy pudding, like lumps of clay, are boiling and bubbling away; and one glance of the glaring mid-day sun seems to stir up the broth as much as the hidden, choking fire below.

'That is the elegant kind of picnic,' said Lieutenant Hongwee, 'which we are often required to assist at: with this difference, that we are marched twenty miles away to some solitary spot, kept out for several days and several nights under canvas, and made to kill our own meat before we eat it, or feed upon blackberries, like the Children in the Wood.'

I saw that this was a tender subject, and I made no reply, but contented myself with observing the other features of the camp.

Most of the men were having a short rest under the tents, being disposed of in the same manner as they sleep at night. About a dozen were lying together on straw, with their heads resting on their great-coats at the lower circumference of the tent, and their feet meeting together at the pole in the centre, like the spokes of a wheel. At a given word of command they all started up, and went to work with their horses, looking more like dirty gipsy ostlers than the clean and clipt soldier who parades the London streets.

The tent of a sub-officer, to which we were invited, was not remarkable for any luxury, except the luxury of being a lodging for one. The sand at the bottom was covered over with a layer of green leaves and a sprinkling of straw; the occupant's soap, and towel, and brush were lying on the top of a tin box; his small looking-glass was on the ground, leaning against the side of the tent; he had made a reclining couch of one portmanteau, a money-box to hold loose silver of another, and he had still another huge, black, drum-like box to offer a friend. He was quite a gipsy king in his tent.

As we sat looking out of the mouth of the tent across the artillery encampment, and past the lower end of the North Camp, we could see a thin winding line of scarlet, that looked like a row of poppies in a field. There were a few black patches (the blue artillerymen and the green riflemen) studded about the sandy flat of common, with here and there a few white stragglers, probably the Stirlingshire Militia, or some Foot Guardsmen in flannel undress jackets; but the scarlet patches prevailed in that direction; and looking further, we saw the white peaks of another range of tents.

'The Guards are as badly off there as you are here,' said Lieutenant Hongwee, alluding to the scarlet patch and the distant tents, and addressing the gipsy king.

'Worse,' returned the gipsy king, 'infinitely worse. We only came from quarters at Woolwich at the dull time of the year; but those poor fellows have just been sent down from London in the height of the season, to be placed under canvas at once. Canvas is a capital thing properly applied—when it means a dancing tent on a lawn at Fulham—but canvas at Aldershott is a far less agreeable affair.'

We sauntered slowly towards the Rifle mess-room for breakfast; Lieutenant Hongwee rather despondingly, and I rather disposed to condole with my friend and companion.

The mess-room was a long, airy building, very lofty for the camp, with a small ante-room in front, and having the mysteries of the cooking department concealed by a chocolate-coloured cloth curtain, stretching right across the apartment near the back. The long dining-table and side-board were well covered with food, and the chairs were the everlasting Windsors. To give a dining-room aspect to these rough companions, they were covered with a padded leather seat and back: a contrivance which each officer provides himself, and carries about with him from one station to another.

'Is this a fair specimen of your ordinary day?' I inquired, as we proceeded with our morning repast.

'It is, with the exception of a few field-days, and our penal servitude under canvas. We rise about ten A.M.; we show upon parade for about an hour, and after twelve, until the bugle sounds to dress for mess at seven, we have no settled occupation whatever.'

'There is a club-house built in the South Camp, is there not?'

'There is, but with a rate of subscription almost prohibiting the entrance of poor subalterns. When there you can only read, play at billiards, or talk. Most men, like myself, who get five or six shillings a-day, spend twice as much as they earn, and that without indulging in any particular extravagance. As most things are done by mutual and equal subscription, the pressure of the service outlay falls heaviest upon the junior members. The major or colonel, who sits opposite to me at dinner, pays no more to the mess fund than I do.'

'You have field sports for your amusement, which need not cost anything.'

'No one cares for them. A few men use the racket-ground; but very few. Rowing up the canal is a favourite recreation; to drink beer at a public-house, where they profess to keep an "officers' room," and then to row back again. The common soldier is better off than we are, for he has his town and his concert-rooms; but we can do nothing except wait wearily for the welcome summons to mess.'

My vehicle, on its road to the North Camp railway station, rolled me past trucks of camp furniture, past cabs containing field-officers, past solitary scarlet soldiers, who stood like lonely poppies in the meadows, past other scarlet soldiers who wound slowly along the drab and dusty lanes, and past a group of boy-children in green uniform, coming through a hedge, who looked as if the very cradles of the country had been emptied for their contents to be pressed into the ranks. I broke through another crowd of soldiers at the station, and plunged into my carriage, glad to be whirled away.

A MUSICAL PRIZE FIGHT.

EW London frequenters of spas and watering-places know the sandy town of Redcar, on the north coast of Yorkshire. It is one of those remote refuges which Nature has provided for bathers who are tired of even the moderate gaiety of Worthing; for north-country mill-owners who wish to wash away the smoke of Barnsley, or the soot of Sheffield; for invalids who are advised to fly from the noise of society into the noise of the elements; and for yachting barristers on the Northern Circuit, who have more taste for catching cod-fish a score of miles out in the German Ocean, than for dangling after broad-hatted beauties at Harrogate or Scarborough. These are the high and important objects for which Redcar has risen from an old and obscure collection of fishing-huts on a line of sand-hills, into a broad, calm street of red-bricked lodging-houses. There is no more human tumult, there are no more signs of life, there is much less of dissipation, in the Redcar High Street on a September evening, than in any well-conducted metropolitan cemetery. The place may be likened to a long cell, into which it is good for worldlings to retire for a while and reflect on the tenor of their past life, with a view of improving the future. The few silent shops seem sacred to the memory of the names over their

doorways; and, although the draper's sends forth a perfume of merinos, silks, and fustian, and the grocer's a scent of coffee, tea, and pepper, both shops may, with very little imagination, be taken for family sepulchres. A shaky cart may jolt by with a load of glistening sea-weed for manuring land, but the horse looks drowsy and contented, as his hissing cargo drops in long brown flakes on the sandy road, and the driver moves as if he had his whole lifetime in which to perform his task. So close as Redcar is to the jar and din of the Middlesboro' iron-works, it neither hears them, nor cares for them one jot. It wants to be left alone. It has been a fishing-town beyond the memory of the oldest man, and a fishing-town you will be pleased to let it remain. It has gone so far for half a century as to net lodgers as well as fish; but the lodgers were none of its seeking. As they think proper to come, they must be respectably provided for; but with no idea of extortion, or of making the most of them. Its principal hotels, while they furnish every comfort, have not yet got beyond the simplicity and moderation of commercial travellers' prices.

The iron road is too near not to tantalize the inhabitants with the prospect of cheap and rapid travelling—too distant to be readily available; the stage coach is unknown, the omnibus has faded away, and the heavy rumbling carrier's cart, with its three coarse horses harnessed head and tail, remains the undisputed master of the position.

The inhabitants of this hill district are clannish and self-reliant. They live and marry amongst themselves, and present the high cheek-bones and hard features which generally mark the Yorkshire race. A few wild offshoots are occasionally sent out as scouts, in the shape of wandering boys who see the misty sea between the hills, and go down to its tempting fishing-boats, and away in its gliding ships; but they return as 'master mariners' to be buried in their native moorland churchyard, and to add their testimony to those who have been round the world, and pronounce that there is nothing in it worth mentioning.

A favourable specimen of a moorland village in the hills, is Lofthouse, in Cleveland, about half way between Redcar and Whitby. Attracted by a handbill advertisement of a 'Grand Village Band Contest' at this place, on Friday, September 30, 1859, I procured a dog-cart at Redcar, and was driven over the greatest part of the way, like the hero of Lammermoor, along the sands, but with not quite such a melancholy result. Winding slowly down a hill which we had reached, into a valley; past a waggon heavily laden with provisions, which was toiling over to the village festival, while the group of

shouting schoolboys who were interested in its contents, were making short cuts to Lofthouse, by scampering over the stubbly fields; past the village clergyman and his favourite monitor, driving over on the same cheerful errand in a substantial four-wheeled chaise; past another waggon, loaded with gravel-coloured peasants mixed with women, boys, and girls, on shafts, back, front, and sides, and almost on the wheels; past a solitary omnibus from Guisboro', specially chartered by one of the competing bands, in which an ophicleide, as large as a village pump, appeared to hold the post of honour, and dingy sax-horns were nursed by rough-looking musical nurses, as if they were children of priceless worth; past many pedestrians who were jolting down one hill, and toiling up another, on their road to the scene of the musical prize fight; past all the signs of a not very distant attraction, down into the valley, across a stone bridge, and up through a dark fir-wood, we drove up, at last, to the door of the principal inn in Lofthouse, the Golden Lion.

There was nothing very peculiar in my appearance, except that I was an alien and a stranger in a place unaccustomed to public visitors; but my general impression is, that Lofthouse was wholly unable to make me out. Several dogs came up to examine me, lolled out their tongues and wagged their tails, and then disappeared in one or other of the open doorways. A large shopkeeper, in a small general way of business, surveyed me from between a number of miscellaneous articles that stood in his shop window amongst dead blue-bottles and expiring wasps. A young lady in full evening costume, even to a low dress and crinoline (the daughter of a leading draper in the village), came out to her father's door, and after surveying me for several minutes, retired into the dim recesses of the shop, totally incapable of making me out. Another young lady at a rival draper's, who was adorning herself for the mid-day festival, after examining me several times, for periods of from one to five minutes each, from her chamber window, continued her toilet, at last, in despair, because she, too, was unable to make me out. A number of boys with vacant faces and open mouths, who stood motionless in the road at the front of the Golden Lion door, with their heads bent forward, their hands thrust into their pockets, and their knees disposed of at different degrees of inward inclination, were also perfectly unable to make me out. An aged bandy-legged man in drab cloth gaiters, who came to, and went from, the threshold of an opposite doorway, like the figure over a Swiss fancy clock, was probably making himself quite ill in his fruitless endeavours to make me out. A tottering old woman in an

adjoining doorway was another observer of the single alien and stranger, and she, like the others, was incapable of making me out.

The Golden Lion and its landlord were far above any such idle curiosity on such a busy day (for them), and while they were as ignorant as any one in the village as to who I was, or who I might be, they made me pretty clearly understand that they cared very little to know, as long as I stood out of the way. The usual hotel form of 'showing' me 'to a room,' was certainly gone through, and I availed myself of it to deposit my great-coat, and my travelling-bag; but, finding that six Lofthouse men were engaged at the window in hanging out a flag, and that preparations had been made for turning this and all the other sleeping apartments into tap-rooms at a later period of the day, I gave it up, without a murmur, into the hands of resolute festivity, and proceeded down-stairs to the old-fashioned stone-floored parlour, that was also kitchen, tap-room, and bar.

Here I found the first band that had come into Lofthouse to try its musical skill, very busily engaged in trying the Lofthouse rum and ale; while, hanging up by hooks from the ceiling, amongst many bundles of dried winter herbs, were several cornopeans to be used in the harmonious fight.

The usual plan of band-approach appeared to be, to stop about two hundred yards outside the houses, and then to tramp in, playing a defiant march. Upon drawing up before the Golden Lion, the players formed a circle, and finished off with another defiant tune, which seemed to say to all Lofthouse, 'We are Farndale; beat that if you can!'

Before the arrival of another party of combatants, these performers retired to one of the drinking rooms, where the landlord gazed upon them with a silent but fatherly interest, having more regard to what they drank than to what they played.

They sat upon tables, and along benches against the wall; they puffed pipes until they were almost invisible in clouds of tobacco-smoke; they disposed of their brass instruments in the window, until the hostelry looked, from the outside, like a military trumpet-maker's shop. Their faces were flushed with beer, if not with anticipated triumph, and they were encouraged to seek victory by the presence of certain gentle beings who had sworn to wear their colours to the last. A couple of Yorkshire 'Arabs' had somehow drifted up from some city of large population in the county, and, while one offered to clean boots at a penny a pair, the other stood up with his nose just above the beer mugs on a table, and sang a popular song, until a member of

a brass band extinguished him with the mouth of a yawning ophicleide. I am sorry to have to admit, in all candour, that these were the only two boys in the village who seemed quite capable of making me out.

I now give the rules and the programme, as they were given in excellent print to me:—

REGULATIONS.

'That the district shall embrace all villages within a distance of thirty miles. That each band intending to compete shall consist of not more than fourteen members, each member having been enrolled in the said band at least three months before contesting. That each band shall have the privilege of choosing one piece of music, the other to be selected by the judge. That no professional shall be allowed to play with any band.'

LOFTHOUSE GRAND VILLAGE BAND CONTEST.

On Friday, September 30, 1859.

N.B.—Placards announcing the name of each band, as they play, will be displayed upon the platform; reference then can be made to the programme. The order of playing will be decided previously by drawing lots.

PROGRAMME.

Test piece, to be played by each of the bands—'Grand Parade March' . . *Jones.*

AISLABY BRASS BAND, 9 Performers.—Leader, Mr R. Corney.

Selection . . . . 'La Somnambula' . . . . *Bellini.*

BILSDALE BRASS BAND, 12 Performers.—Leader, Mr W. Hart.

Selection . . . . 'Twelfth Mass' . . . . . *Mozart.*

FARNDALE BRASS BAND, 11 Performers.—Leader, Mr Potter.

Selection . . . . 'Lucrezia Borgia' . . . . *Donizetti.*

GUISBORO' BRASS BAND, 12 Performers.—Leader, Mr Bannister.

Selection . . . . 'Il Trovatore' . . . . . *Verdi.*

LOFTHOUSE SAX-HORN BAND, 10 Performers.—Leader, Mr J. Walker.

Hallelujah Chorus . . . . . *Handel's Messiah.*

The contest will commence at one o'clock.

The first three of these bands were what is called 'moor-bands;' that is, a troop of performers collected in a straggling district of cottages, extending from ten to twenty miles, the inhabitants of which have proportionately few opportunities for practising music together. The Guisboro' band has the good fortune to come from a town that boasts a railway terminus, and which can scarcely be called a village; while the Lofthouse Sax-horn company was the only strictly 'village' band that was entered for the musical contest.*

* Mr Enderby Jackson, of Hull (the great promoter and organizer of these bands), tells me that there are village bands in almost every village in Yorkshire, Lancashire, and Lincolnshire, and that they abound in the mining districts of Cumberland and South Wales.

The whole village, though it could not quite make out all the important points in the combat, was quite willing to stand still, with its hands in its pockets, and to give itself up to gazing at everything and everybody, and the moderate dissipation of an extemporized fair. The daddies (and what village is without a dozen of them?) crawled up and down the hilly street with blinking, smiling satisfaction; while the grannies (and what village is also without a dozen of them?) conferred with each other across cottage garden palings. The children assembled round every object of the slightest show or interest, in speechless astonishment, and listened wherever there was one man speaking to another.

The individual who seemed to take in the whole festival with a quiet grasp of intellect, was a dusty, yellow-coloured quarryman—or something of that kind—who was returning home to dinner from his morning's work. He said nothing, although he stood in the midst of a (Lofthouse) crowd; but the twinkle of his eye, and the saucy tilt of his ragged cap, spoke volumes, even without words. His jacket was flung over his shoulder, in the form of a soldier's breast-belt; and in his hand he held dangling a tin can, like a small oil-can, which was most probably devoted to his daily allowance of tea. He looked as if his body had been buried in clay three parts of his life, without destroying his sense of enjoyment, or his belief that whatever is, is right. The children gathered round him, as round one who was evidently good at thinking, and who might possibly give utterance to something that it would not be well to lose. Their expectations, however, were doomed to be disappointed, for, after regarding the Golden Lion, the assembled bands, and the spectators at the opposite cottages, with another eye twinkle, and another meaning smile, he walked slowly down the village hill at the Whitby end, as he had walked slowly up the other hill at the Redcar end, swinging his tea-can jauntily at his side, and dragging his heavily-booted legs after him, but making no further sign.

At length the time approached for the musical struggle, and the order was given to desert the rum-glass and the ale-can, and to march to the meadow, where the judge and the orchestra were ready. This was done in noble style, each band of performers playing its own favourite march, in its own favourite way, and being headed by its own favourite musical vivandières. This time it was the turn of the oxen in an adjoining paddock to be thoroughly astonished, and, after regarding the troop of visitors and players with becoming gravity, they evidently came to the usual Lofthouse verdict, that they were

not able to make it out. The four or five policemen from the different villages were disposed of round the meadow, and their first duty, as usual, was to chase unruly boys, who dodged behind hedges instead of paying sixpence, and coming in by the legal entrance, up a lane.

The judge got into a bathing-machine, which had drifted up from the coast on to the hills, to serve him as an observatory, and being duly fortified with apples and a bottle of liquid, he gave the necessary and long-expected sign to begin.

It was Guisboro' that led off first (by lot) with Mr Jones's March; and, without pretending to be critical, I may say that the performance more than equalled the composition. The Lofthouse Sax-horn band then took possession of the arena, and showed the judge and the visitors what village amateurs can do. Both of these companies were dressed in something like uniform, which may, or may not, have had an effect upon their musical unity; and it was not until the Aislaby players stepped on the platform that I, for one, amongst the audience, had an opportunity of regarding a lonely Yorkshire moor-band, standing up without any adventitious aid. Without inquiring too closely into the daily occupations of the performers (which, I am given to understand, may range from farming to iron-working, and sometimes to keeping a shop), I should say that a journeyman baker, two regular canal bargemen, three Dudley colliers in their Sunday clothes, a working blacksmith hastily summoned from the forge, and two Scotch tally-men, provided with dingy trombones, cornopeans, Sax-horns, and ophicleides, would complete the picture of the Aislaby band. The Farndale and Bilsdale moor-bands that followed them, were twin brothers in appearance; and I say this with no disrespect to these humble students of a refined accomplishment, but rather to their infinite credit. They were all working men of the hardest working class, and they manfully showed like what they are.

When Mr Jones's March had been decently blown through the five brass bands and then got rid of, the second test of comparative merit took place; the performance of the operatic and sacred selections. The same rotation was again observed, and after Guisboro' had led off with a number of airs from Il Trovatore, the Lofthouse band followed with the Hallelujah Chorus, and the moor-bands of Aislaby, Farndale, and Bilsdale respectively, with selections from La Somnambula, Lucrezia Borgia, and Mozart's Twelfth Mass. To say that the performance of these difficult pieces approached perfection, would only convey an untruth, but it far exceeded the ordinary standard of civilization existing at the places from which the bands

were drawn. The Bilsdale band, although playing with less spirit, perhaps, than some of their rivals, had a keen sense of harmony, and a rich mellow tone, which suited my taste even better than the performance of their more successful competitors. It was a sight to see the leader of this band, a short and sunburnt young man, like a country 'boots,' dressed in a waistcoat that might have been a piece of leopard's skin, except that the ground, instead of being brown, was crimson, and the spots, instead of being black, were a very prominent white. There were several other moor-flowers in this and other bands, with a taste for very similar waistcoats; and not the unapproachable Jullien, in all his glory, could compare with one of these.

To see such conductors waving a cornopean, while 'T' Twel' Mass o' Mozart,' or 'S'lectshuns fram t'Narma,' as they were conversationally called, were being played in rather slow—and consequently Lofthouse—time, was a hopeful sight for those who travel through the moorland district in the constant fear that some ruffian will 'fettle their mouths with a brick.' I do not pretend to say, that because *Ah, che la Morte!* is blown upon a Yorkshire trumpet, fighting is altogether a stranger to Yorkshire fists, but I think that the man who conducts the melodies of Bellini, although in a crimson waistcoat and corduroys, is not likely to bite off his neighbour's ear, or to gouge out his neighbour's eye, and is very likely to have a humanizing influence on some of his cultivated brethren, besides.

The excitement when the prizes were declared to be awarded in the following rotation—

Lofthouse	First,
Guisboro'	Second,
Farndale	Third,
Bilsdale	Fourth,
Aislaby	Last,

was sufficient to show that the cudgels and the wrestling ring had not altogether been exchanged for the harp; and the cheers and groans were sufficiently loud and antagonistic to warrant the presence of the police-officers, who had come from every village within twenty miles. The final musical assault of the day was the triumphal return of the five bands, in the order of their adjudged excellence, to the devoted and expectant Golden Lion, where all the dirty glasses and mugs of the morning had been washed for the afternoon, and where fresh barrels of ale were set under groaning machines to satisfy alike the demands of the victor and the vanquished. The noise that

these enraged and delighted musicians made, as they marched into the village, all playing at once, and all playing different tunes, amidst the barking of dogs, the shouting of children, the cheering of friends, the groaning of enemies, can only be compared to Bartholomew Fair in its palmiest days, when every showman was beating his gong, and declaring that he alone was the possessor of the original spotted boy.

A PHANTOM OPERA.

ON the evening of the twentieth of April, 1858, I went to the Opera-house in Covent Garden, provided with an order for admission by the kindness of Mr Gye, the proprietor. I arrived at a quarter-past seven o'clock, humming an air from the Huguenots; the Opera I had seen placarded all over the town; to commence precisely at eight. When I got out of my cab in Bow Street, I fancied for the first time that something was wrong. I was put down before a dingy hoarding, above which arose, against the clear moonlit-sky, a tangled web of scaffold-poles, ropes, ladders, columns without capitals, capitals without columns, pails, baskets, hods, planks, and shouting men. I entered at a rude workman's door, inside which stood a door-keeper, sheltered by a small hut upon four wheels. I delivered the order of Mr Gye with some hesitation, but was immediately relieved from any doubt by being requested to follow a guide who would conduct me to my seat in the building. I resumed the humming of the air.

We threaded our way with difficulty through heaps of sand, small hillocks of mortar and cement, earth-sifters, spades, pick-axes, carts, horses, blocks of stone and piles of timber, towards a low, cavernous, dimly-lighted opening, at the foot of the lofty side-wall of the theatre. In the dusk, we passed troops of men, marching steadily forward with heavy loads on their backs; and I noticed that the prevailing style of evening dress was fustian trowsers, tucked up over laced-up boots, surmounted by a clayey, whitey-brown shirt. As we approached the building, I heard a loud sound, but not a shout of harmony. It was composed of the metallic ringing of trowels, the echoing blows of various-sized hammers upon various-sized bodies, the dabbing of cement upon walls, the soft simmering of smooth-

ing-boards, the harsh grating of saws, the full whistle of large planes, the falling of masses of timber, the iron rattle of pulleys, and the hum and shouts of men busily setting all these things in motion. Stooping under the low arch, and crossing a tottering plank, I left my companion, and found myself standing in the pit of the great Opera-house. No white and gold decorations; no satin elbow cushions; no velvet seats; no crowded orchestra with green-shaded lamps; no full, bulging curtain; no galaxy of wreathed beauty; no chandeliers, no lorgnettes; but the aspect of a dismantled cotton-mill—a mixture of Lisbon after the great earthquake, and the ruins of the Coliseum, with the chaotic work-shop of a Leviathan building-contractor turned into them.

I have seen many Opera-houses in Europe; but never such an Opera-house as this. I climb up as best I can, from the earthen passage that runs round the house (a fop's alley that would drive fops mad, so studded with mortar-heaps, rough timber, and tenpenny nails), and obtain a footing upon a fortuitous concourse of planks that form the elevation of the pit. Up from the centre of the flooring into the distant roof runs a rough pine-tree pole, round which is a large hoop of gas, which lights the building efficiently, but rudely, as if it were a travelling circus. Up in the roof is a star-shaped scaffolding, with many thousands of planks, looking like paper-knives, or old-fashioned broad matches, radiating in all directions.

There is a moderate audience as to numbers; but their conduct is singular in the extreme. The Opera is essentially a lounge: the Opera-goer is essentially a lounger. There are people who work at Opera-going, as they would work even at opium-eating: people who run with industriously-idle curiosity after particular vocal stars; people who barricade theatre-entrances from the middle of the afternoon; people who struggle painfully up staircases and along passages —individual embodiments of that fearful, restless Anglo-Saxon energy, which, merely to look upon, drives the pure lounger to distraction. The body of Opera-goers are toned down by refinement and aristocratic ease. They toil not, neither do they spin.

But here their simple temple of taste, luxury, and melodious idleness, is given over to the frantic hunger for exertion of the flannel jacketed, blue-shirted maniacs of toil. Turn my eyes wherever I will, instead of the bright eyes and beaming faces of my lovely country-women, I see dirty men engaged in a fierce war with inani-

mate matter. They strike it sometimes gently, sometimes heavily, with hammers; they drive into it long nails; they chip it with sharp chisels; they cut it with sliding planes, they swing it by means of ropes in mid-air, they hurl it from giddy elevations down into yawning earth-gulfs below. Sometimes they pause a few moments for rest or consideration; but only to renew the attack with more energy than ever.

I look towards the stage, and find it nothing but a number of thin planks, sticking upwards like hop-poles. Far beneath these planks are dark brick arches, and black passages, under which little knots of labourers are conversing mysteriously, and in and out of which tramps a procession of dirty powdered men with hods of mortar upon their shoulders. A bare wooden proscenium hangs suspended from the rafters over a dark earthen gulf, where the orchestra should be—long, broad, and deep enough to swallow all the opera bands of Europe. Stretching up on each side, and across the back, is the scooped-out expanse of the stage, looking like the undeveloped plan of one of our large public squares. There are lofty, solid blocks of clean, new brickwork; large archways and gaps showing the thickness of the walls; heaps of dirt, dust, and brick rubbish; iron girders; and strong rude galleries running high up along the walls. Above all, there are more fan-like coverings of planks, through which dangle dusty boots and legs; from which men slide down ropes into the dusky pit beneath; and from lath to lath of which men hop, serenely unheeding their danger; pursuing their allotted task of labour, even to the gates of death. At the back of the stage, underneath the painting gallery, on a raised platform, intended for the machinists' workshop, is a long row of men in paper caps, cutting, smoothing, and hammering for their lives, by the light of a line of flickering gas jets. It is the only grouping in the theatre that presents anything like stage effect; and, although I have long given up all hopes of the Huguenots, I still look in this direction for a chorus taking the form of a benediction of the trowels.

Climbing over ragged timber, running up and down tilting planks, jumping over prostrate poles, bonneted by overhanging rafters, hustled up dark, uneven, unfinished staircases by dusty labourers, deafened by the ceaseless din of the discord of work, my boots and trowsers soiled with whitewash and mortar, choked with a dust compounded of a dozen different materials, I begin to feel that I, too, am *not* an Arcadian, and I thread my way painfully and timidly to the galleries above the stage, in search of comparative repose. I find the galleries

but I find no rest. The din reaches me there, if anything, with increased force; and, as I look from the stage towards the interior of the house, I see the little hives of industry in full activity. Up in the galleries, amongst the cobwebs of wood-work, are little glimmering lamps; centres of nodding heads directing upraised arms that strike and pause, and pause and strike again. Carrying my eye round the circle of the boxes, the novelty of the sight is still more apparent.

What is it that I am looking at? Is it a sectional view of some model lodging-house; the interior of an unfinished emigrants' hotel at the Bendigo diggings; or a theatre erected in the wilds of Ballarat to provide the imported luxury of deal boarded private boxes for successful miners, who are determined to have the genteel thing, and hang the expense? In one bare wooden box, seated on a rough stool, is a melancholy looking lad, gazing vacantly at the monotonous performances below, and unconsciously imitating the aspect of some fastidious musical critic, who is dissatisfied with the execution of a new German singer, or the composition of a hitherto untried opera. Another box has an air of domestic comfort about it, savouring of the model lodging-house. A hat and a coat are hanging up; and, in addition to a stool, there is something that looks from this distance like a table. A good apartment and fitting for a single young man. In another compartment are two men in familiar conversation, and common clothes. They may be discussing the merits and demerits of the entertainment; and they diffuse for a little distance around them the idea of working-men attending a working-man's Opera, at a working-man's Opera-house. In other neighbouring boxes are men engaged in nailing up and papering the walls; and this carries us back again to the idea of an emigrants' hotel. Some are coming in or going out of doors; some are in their shirt-sleeves; some are talking from the open, unfronted apertures to their friends in the boxes above or the pit below. Generally the favourite means of access from the gallery to the lower portions of the building, in this very primitive theatre, seem to be by ropes and ladders extending from the one to the other. The line of what I should consider the dress-circle, presents the appearance of a row of shops; unopened as yet in a new settlement, and awaiting patiently the different trading stamps which are to be set upon them by enterprise and capital.

The floor is alive with heads, the roof is alive with legs—heads and legs of dark, light, black, white, brown, and slate-coloured men. I am disturbed in my gallery, and my reverie, by an insidious labourer, who first makes himself and me thirsty by sweeping a lot of dust,

shavings, and broken brick together in a corner behind me, and then hopes that the workmen may have the pleasure of drinking my ''onner's 'elth.'

'How many of you are there?' I inquire, resigning myself placidly to this begging box-keeper.

'Eight 'underd, yer 'onner.'

'Eight hundred at a shilling a-piece. A hundred shillings is five pounds. Eight times five is forty. Forty pounds for beer? Take it, and be happy!'

A shout of joy rang through the building. The heads wagged furiously on the floor beneath; the legs kicked violently through the roof of planks above. The lights began to die out one by one. The performances were over for that evening. Sudden silence came upon the weary ear at last. I joined the stream of earnest, steady labour pouring through the dark passages, over the sand hills and under the sheds, into the street once more.

No matter what I see now, or what I may see hereafter, I shall always believe to my dying day, that all that army of eight hundred trained labourers, was, on the evening of the twentieth of April, eighteen hundred and fifty-eight, employed with all its will and all its strength—not in erecting—but in pulling to pieces, stone by stone, splinter by splinter, and brick by brick, the mighty structure of the Italian Opera-house in Covent Garden.

A WORKING OPERA.

AT three minutes to eight o'clock, one Tuesday evening, a few weeks after the night of the Phantom Opera, and I find myself upon the great stage of the Italian Opera-house in Covent Garden. The building is now completed, and the piece upon which the curtain will rise in a few minutes is the well-known tragic opera of the 'Huguenots.' Before the curtain is the white and gold, and blue and purple, decorated area, which contains the picked representatives of the refined society of the middle of the nineteenth century.

Behind the curtain, and around me, are the men and women who will, to the best of their ability, give a representation of the stern and rugged Paris society of the latter half of the sixteenth century. They

are collected from many countries: sallow Italians, high-cheeked Frenchmen, stout Germans and Flemings, tall thin Poles, Tartar-looking Hungarians, and the smooth-faced natives of our own land. Some are chorus-singers; some merely supers, or men who, having two legs, two arms, one head, and one body, let these physical advantages out for a small nightly rental, to be arrayed in any costume the stage-manager may direct, and the stage costume-maker provide —to hold any flag, gun, sword, staff, halberd, battle-axe, or goblet, that may be placed in their hands; and to be arranged in any position by the pantomimic director, upon bridges, in market-places, turret-windows, or princely halls; exhibiting in the mass every stage expression, from stern unrelenting warlike fury to easy conviviality. The super, if he does not bring to his labour a very high order of intelligence, has an almost military sense of duty; and I firmly believe that if directed to take up an attitude as one of the ornaments of the pediment, in the portico outside the stately building, he would do so, unflinchingly and mechanically, posing like an oriental fakeer, or an ancient column-stander, exposed to all the variations of a severe and fickle climate, until the curtain of death rang down upon him at his post.

The chorus-singer is not so manageable an individual; he will sing, but he will not act. If he is a fat Italian, it only makes matters worse; for the old native indolent spirit can never be overcome by all the Anglo-Saxon energy in the world. Ask Mr Harris, the best and most active of stage-managers, who with all the tact and experience, all the industry and determination, all the polyglot denunciations at his disposal, finds it a most difficut and heart-breaking task to infuse some appearance of life into those masses that stand like a row of butts in a brewer's storehouse; musical, most musical, but at the same time most melancholy. The chorus-singers' most common notion of dramatic action is the throwing up of a single arm, as if hailing a cab in the public streets; his extraordinary notion is the throwing up of both arms, as if voting totally and energetically at a public meeting. Having exhausted these two very obvious, and not very elegant or elastic modes of pantomimic expression, he relapses into a state of profound, undisturbed physical quietude and self-possession. Out come his notes as melodiously and as correctly as the most exacting and fastidious conductor can desire. His voice is at the entire service of the management, but his attitudes, never; and what little vitality is infused into such inert masses of vocaliz-

ation, is due to the introduction of mere pantomimic members of the chorus.

I pass on to the centre of the stage, and find it apparently a scene of hopeless entangled confusion. Machinists' labourers are rushing madly about, bearing what appear to be large solid blocks of architecture in their arms. Others are setting the elaborately-painted walls and deep-windowed recesses of the mansion of the Count de Nevers, the scene that opens the opera. Tables are being arranged covered with fruit, flowers, golden vases, and drinking-goblets. Neat pages are walking listlessly about with wine-jugs in their hands; and the Catholic noblemen settle down one by one out of the surrounding confusion in their appointed places at the banquet, awaiting the rising of the wall of canvas that conceals them from their audience. Their legs form an unbounded field for observation, tightly cased as they are in the long coloured stockings of the period. There are red, blue, black, white, slate, green, pink, and scarlet legs of every variety of shape: some short and thick; some long and thin; some knotted like the trunks of oak-trees; some stiff and unbending; some springing and elastic; some a little—just a little—inclined inwards at the knees; some inclining in an equal degree outwards; some—the white ones—straight and equal all the way down, like altar candles; some like large parsnips, others—the red ones—like large carrots; some very pointed at the knees; some flat in the calves, as if their possessors had been too much in the habit of lying supinely upon their backs, with their faces turned upwards; others sharp in the shins—so sharp that it is a marvel how any stockings can be found sufficiently strong to resist the cutting powers of such members. The click of the prompt bell is heard, and the opening notes of the opera swell up from the finest orchestra in the world, muffled, however, to my ears by the folds of the intervening curtain. The old Huguenot chant merges into the opening chorus; the curtain rises, and the two halves of the great opera-house—the stage and the audience—are made acquainted with each other.

While the banquet, with all its attendant music, is going on, a hundred busy workmen are preparing the second scene, the château and grounds of Marguerite de Valois in Touraine. At the proper moment, when the first scene has closed, the walls of the Count de Nevers' mansion are torn asunder, as if by an earthquake, by the troop of men who swarm behind them, and are hurried into recesses —called scenery-docks—at the side; the tables, the goblets, the flowers, and the chairs are swept away at the same instant; and the

turreted castle, the river, and the high, broad, solid flight of steps in the noble gardens of Chenonceaux, are displayed to the audience. The men with the curious legs crowd behind the scenes, or flow out of the different entrances, their places upon the stage being now occupied by ladies in flowing muslin robes, the maids of honour to Marguerite de Valois. Melody follows upon melody; the plot thickens, under the struggling outbursts of the chorus, the warbling of the principal singers, and the surging sea of sound from the instrumentalists in the orchestra; the stage gradually fills with the people of the drama; the great roll of gray canvas comes slowly down, like a mountain mist; the distant music floats away, and the first act is over.

The illusion of the scene is destroyed at a blow. The palace and gardens of fair Touraine are no more; a hundred men in caps and shirt-sleeves are running about the stage, hustling the sombre Huguenots and the gay Catholics in the costume of the sixteenth century; bumping against the titled loungers in their French hats, white neck-ties, and patent boots—carrying turrets, trees, parts of staircases, fragments of houses, and beds of flowers in mid-air, shouted at by the excited stage-manager, excited pantomimic director, excited machinist, excited scenic director. Bit by bit the chaos takes the form of something like order; two old solid inns are built up with pieces numbered and labelled like the parts of a church manufactured for exportation; a chapel is raised in the background; the Seine is filled in; the stage is grouped with all the characters that usually attend a continental Sunday fair; the curtain again rings up, and a picture of life in the Pré-aux-Clercs of old Paris is presented as a basis for the second act.

The stage, under the new mechanical arrangements, is, in nearly all cases, 'closed in'—that is to say, the old plan of wings, and 'flats which slide on from each side, and join in the centre, is given up, and every scene is built up, as far as possible, in a solid form, the whole being shut in by side-pieces. The picture thus presented to the audience is with the performers enclosed in a semicircular form occupying about two-thirds of the available stage; and those who are before the foot-lights, with those who are behind the scenes, are left to enjoy their respective areas of comparative privacy undisturbed by each other.

It was while availing myself of this seclusion from the tragic interest of the story that was engrossing the large and fashionable audience in the front of the house, that I found a Huguenot soldier relieving his overcharged theological feelings in one of the passages,

by throwing a modified back-somersault, technically known in the acrobat profession by the title of 'flip-flap.'

Outside the charmed circle, or semicircle, of stage effect, was the usual crowd of supers and chorus-singers, interspersed with a few persons like myself, and half-a-dozen policemen, backed by the clean new brick walls of the building, and the dark staring windows—black from the intense light within the house—that look out upon the neighbourhood of Covent Garden. Within the charmed circle, aided by the highest order of scenic art; aided by some of the most dramatic music that was ever given by a composer to the opera stage; aided by two of the greatest vocal artists that ever breathed the breath of life into the melodies of this immortal work, is it to be wondered at, that, looking through the gauze-paned window of that room in the castle of the Count de Nevers in the well-known third act, I should, even from this point of view, be completely impressed with the illusion of the scene, feeling like one who, in the fatal month of August, 1572, gazed upon the murky walls and heavy hangings of some Catholic noble's mansion; saw the hooded monks and nuns streaming in through the arched doors; heard the blood-thrilling blessing of the sacrificial swords; and saw the anointed assassins slink stealthily out into the streets of old Paris to commence their fearful work. And when Raoul, in that passionate scene that follows the benediction, upon hearing the deep-toned bell of St Germain, rushes to the same window and throws it open, although he gazes in reality upon the blank wall, a few grimy stage-carpenters, a policeman, and a female dresser, waiting with a cloak for her mistress when she comes off after the present duet, who shall say when they look on that pale face, and in those two glaring, startled eyes, that he does not see all he professes to see—the bodies of his helpless friends shot and cloven down in the narrow streets, or floating by in the dark waters of the Seine, with their upturned faces covered with blood? And even when the final leap from the window is taken, into the midst of the motley group who await him, it is at least a minute before he shakes off the influence of the scene, and returns to the more mechanical business of the stage.

The fourth and final act is not hurried over or slurred, because, after the great spirit and interest of the third act, it presents something of an anti-climax. A richly-tinted windowed chapel is built up, inside which the full tones of an organ are heard, and from which the variegated light streams upon an enclosed yard, where the final massacre takes place. Part of a cathedral is seen, and outside the

yard is a Gothic shrine, beyond which are solid blocks of houses forming the opening to a long, narrow, winding street, at the end of which glisten the waters of the Seine, lighted up with the pale glimmer of coming day. At the side, some of the men with the curious legs are seen once more, stationed to fire the final volley that ends the opera. At a given signal, it is done—the startled female members of the company are deafened for a few seconds with the roar of musketry, the stage is partially filled with smoke; the last faint notes are gasped out, and the great curtain falls for that night upon the opera of the *Huguenots*.

As I pick my way towards the stage-door of the theatre, through the fourth ruin of the evening—the pulling-down and packing away of the final scene—I feel that the faces I have seen under pumpkin-shaped helmets, beef-eater cloth caps, black wide-awakes, and puritan buff hats, will come across me at intervals for the next four months, sitting at café-tables, standing at the corners of theatrical streets, and even meeting me in situations where it will be a long, sore, painful, but unavoidable tax upon the memory for me to recollect under what circumstances and in what places they have appeared to me before.*

SHOT.

IT is the fortune of war to be honoured with monuments. Not always dignified statues standing on short pedestals —not always marble horsemen sitting jauntily upon marble steeds—not always blood and fury relievi, which, with their attendant tablets, adorn the peaceful, dim, religious aisles of the National Cathedral—not always iron dukes, who, in the hats of beadles, and with the batons of the ghosts in Hamlet and Don Giovanni, point for a bronze eternity to some London stable-yard or skittle-ground—but sometimes it is a more ambitious monument—a column that towers upward into the outer coating of the metropolitan smoke, looking at a distance like a high constable's staff of office, or the ornamental pillar of a lamp for patent candles. Two such columns as these are among the architectural features of our city,—the monument to Lord Nelson, and the pillar of the Duke of York.

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Standing in the iron cage that crowns the summit of this latter structure, and directing your eyes in a south-easterly direction to the banks of the river, you may yet see another circular column of greater altitude, but of more homely exterior, built, in fact, of unpretending brick, and surmounted by nothing more ornamental than a bare flag-staff. This is also a building dedicated to war, but it bears the same relation to the Duke of York's column as the private soldier does to the commander-in-chief,—the same relation to the Nelson column, as the able seaman does to the lord high admiral. It is the Lambeth shot-tower, and if poetical justice had been consulted, instead of the adornment of the metropolis, the statues of those distinguished fighting men whom England delights to honour should have been placed upon the summit, and in niches round the interior, of this working monument. There the stream of deadly shot, pouring from roof to basement, with a leaden roar, would have gladdened their marble eyes and ears, and hearts, making a worthy Walhalla for their mighty marble souls, even amongst the Bankside wharves and timber-yards. As it is, the Lambeth shot-tower is in the peaceful possession of Messrs Walker, Parker, and Company (by whose kind permission I have been allowed to go over the works), and the constant manufacture of the small, globular, insidious instruments of death does not seem to have had an unamiable effect either upon masters, overlookers, or labourers.

Those who are curious in speculations on the effect of certain employments upon the mental and moral character of man, will probably be glad to learn that the labourer who is occupied for ten hours every day in sharpening daggers and bayonets, or giving the finishing edge to the chine-splitting sabre, is a mild and inoffensive creature in the intervals of business; an affectionate husband; and an indulgent father of a family. Deadly revolvers are not put together in all their fatal beauty by sour cynics who have become weary of, or spiteful to, the world, but by hard-handed workmen, who laugh, sing songs, and whistle tunes as they follow their employment, and claim a fair day's wages for what they consider a fair day's work. The motley ingredients that go to make up those engines of war that are known by the titles of bomb-shells and hand-grenades, are not mixed by crook-backed, grinning dwarfs with grinding teeth, and aged, mumbling crones with withered arms. Oh no, my Christian brethren, for these things—like all things else—obey the universal law of supply and demand. Machinery may intervene, and remove the workman to a decent distance from his labour, but grant the necessary stipend, and

pay it punctually, and you shall never want for jovial, full-blooded men to obey your bidding. And while one mass of fools are determined to march against another mass of fools for the avowed purpose of fire and slaughter, who can grumble that they have materials put into their hands with which to kill each other in an artistic and expeditious manner? Therefore, if any enthusiastic and hot-headed members of the Peace Society should ever think of marching bodily against my friends of the shot-tower, I will be one of the first to defend them and their stronghold with all the physical power at my command.

If ever I am to be sent suddenly into the lap of eternity, let it be with my body nicely beplumbed with the smooth, round, glossy shot that I have seen manufactured at Lambeth, and not—like some of my ancestors—with my head split in two, like a water-melon, by a clumsy battle-axe, or one of my eyes knocked into my brain with a cloth yard shaft. Let me—like Julius Cæsar in the forum—die decently; let me—unlike Julius Cæsar—have all the advantages of civilization assisting at my death, as developed in the improvement of the engines of destruction.

A most deceptive place is the shot-department of this Lambeth workshop. If the emblem of peace is plenty—as the poets put it—and the image of plenty, as the painters put it, is a female scattering, right and left, the seeds of golden corn, then must the shot-tower and its warehouses be the very temple of peace, for never did a place that was not a granary, put on such a natural granarial appearance. If any member of that Society that I have before alluded to was brought here blindfolded, and the bandage taken off when he was in the midst of the sifters and the troughs of shot, he would immediately fancy himself, without any stretch of imagination, in the corn-market of Mark Lane, handling his specimens of the finest agricultural produce. Canvas bags open at the top, and full of the smooth, black, deadly grain, are lying about, to aid in the illusion, which is further assisted by the general cleanliness of this department of the place.

Led by a steady, rushing noise, like the sound of a great waterfall, I take the arm of my imaginary friend from the Peace Society, and in a few minutes we are standing inside the base of the shot-tower. It is a few feet higher than the monument on Fish Street Hill, and about three times its diameter. It is circular in form, built all the way up with solid brickwork, and lighted at intervals with small, arched, cavernous, glazed windows, the recesses of which serve to show the thickness of the wall. Winding up the side is a narrow

staircase, plentifully lined with dirt, coal-dust, and black-lead, and protected by a thin iron railing. The cost of this tower is estimated at thirty thousand pounds. On the floor are several bars of prepared lead—the material from which the shot is cast—and a kind of copper with a fire burning underneath it. In the centre are two short, broad tubs—like washing-tubs—filled with a thick, muddy-looking water. One is perfectly tranquil on the surface, but the other is bubbling and foaming up like a water-plug that has been opened in the streets, for a stream of lead is pouring into it from the roof of the tower, at the rate of a ton of shot in every five-and-forty minutes, causing the ceaseless, deafening roar that first excited our attention. Casting our eyes upwards along this stream, and tracing it to its source, we find it coming from a few silvery drops that fall through a small square trap in a wooden platform erected across the top of the building. These drops increase in force and density as they fall lower, until, about the centre of the column, they unite in a straight, thick, slate-coloured stream, lighted up by the sunbeams as it passes the windows in the wall. Looking through the open trap at the top, watching the descent of his handiwork, is the man who is superintending the casting, dressed in a dirty canvas smock shirt and a brown-paper cap; presenting the appearance of a small, quaint picture set in a square frame. He has a counterpart in a mild-looking fellow-workman below, who stands calmly by, while the cataract of death is hurrying down to the waters of oblivion. Anxious to examine more closely the source of the cataract, we toil laboriously up the winding stairs, passing the roaring, rushing stream at every turn, until, after a time, we reach the summit. There we find a simmering cauldron full of molten lead, set in a frame of brickwork on a furnace; while by its side stands over the open trap a metal pan, or shallow basin, set upon four thin iron legs. The bottom of this pan is made of paste, and as the man in the paper cap keeps ladling it full of the red-hot liquid metal from the copper, small, bright, silvery drops keep oozing through, like quicksilver globules, and falling down the open trap like harp strings into the gulf beneath. I look on, perhaps, with culpable indifference, equal to that of the placid workman who goes through his allotted task like a workhouse master serving out the dinner soup; but my shadowy companion of the Peace Society shudders as he feels that in that small, insignificant hand-basin, lies the source of the great stream of death that thunders down into the waters beneath. As we wind slowly down the stairs, we stay to reflect that in the perfectly globular form which the liquid metal

assumes as it descends the pit, is contained a beautiful, although minute, exemplification of that great law of physics which gave the spherical shape to every planet that rolls above our heads. The object of preparing the water below to receive the metal drops is to preserve the globular form, which would be destroyed by coming in contact with an unyielding substance.

When the white shot is taken out of the tubs of water, it is removed to that part of the building which I term the granary, where it undergoes a simple process of drying. After this, it is found necessary that it should be carefully sifted, to separate the different sizes of shot. The machinery provided for this is a long, hollow, copper cylinder, perforated with holes like a nutmeg-grater, or the barrel of a musical box, when all the pegs are taken out. These holes are of different sizes, divided into several stages down the cylinder, the smallest coming first, and progressing gradually to the largest, which come last. The cylinder is slightly inclined towards the large perforations, and is made to revolve slowly by steam-power; the shot is then poured in through a funnel at the upper end, and the operation is then left to work itself out. The baby shots, the youthful shots, and the full-grown shots, as they roll into and are worked round the cylinder, find the holes themselves through which they can comfortably squeeze their forms, falling into the different troughs that are waiting to receive them. This is altogether so much like an agricultural operation connected with the seed trade, that my shadowy, peace-loving friend forgets where he is, and, for a time, is happy.

When the deadly grain is collected from the troughs, it is placed within another small, revolving cylinder (not perforated), where its leaden whiteness is changed, by the agency of black-lead, to a bright, polished sable. It is then found that amongst the mass are a number of imperfect globular shot, so much flattened at the pole or poles, as to be utterly unfit for a place in the hearts of men, or birds, or beasts, and only worthy of a tomb in the waste-box. These false ones are detected by a simple but very ingenious process. A small, smooth, wooden, fan-shaped platform is fitted up, edged in, and inclining slightly towards two troughs, one placed immediately under the edge of the board, the other at a little distance from it. The polished shot is then poured gently, and with equal force, down a perpendicular funnel that discharges itself upon the inclined platform. The shot that is perfect rolls with sufficient impetus down the board, to carry it over into the further trough; while the imperfect shot

either sticks fast with its flattened surface upon the platform, or drops lamely into the nearest waste-trough waiting to receive it.

With this mild, playful, infantine, toy-like process the terrible business of shot-making ends. That which began in the tempest of the roaring shot-tower, is finished calmly in the quiet of the granary of death. We walk out into the street once more, and into the middle of the nineteenth century—I and my shadowy, peace-loving friend; and though those who pass us by can hear no voice, there are certain questions that he pours into my ear which I cannot answer, though I have the will.

HAPPY DOGS.

THERE is one benevolent institution in London, of recent origin, which really diminishes pain on one side, without increasing it on the other, and which does not undermine the self-reliance of those who are taken to it as a refuge. It contains no labour, housed, fed, and clothed at the public expense, and employed in manufacturing door-mats and fancy baskets to the derangement of trade in its district. It presents no population difficulty that cannot be solved with a tub of water. We are speaking of the Home for Lost and Starving Dogs at Holloway. It can hardly be said to attract the class it is intended to benefit, for, great as the acknowledged sagacity of the dog may be, the home can hardly reach that sagacity by advertising its comforts in human newspapers.

This charitable refuge for lost and starving dogs is now a permanent London institution. It has lived through all the doubt, difficulties, and ridicule which attended its birth. It owes its existence to a benevolent lady at Canonbury, who started by befriending a few stray dogs, and giving them a home in her own house. As their numbers increased the difficulty of keeping them in a private dwelling grew greater, and a gentle local agitation was got up to enlarge the sphere of the charity. The Home was established by these means in October, 1860, and its motto is, 'I cannot understand that morality which excludes animals from human sympathy, or releases man from the debt and obligation he owes to them.'

The Home is now no hole-and-corner institution, managed by one or two amiable enthusiasts in a back street of the suburbs. It has

four lady patronesses, three of them being ladies of title; it has a committee of seven ladies and four gentlemen, and its honorary secretary is a clergyman. At present it has nearly fifty annual subscribers, and another fifty donors of all classes whose names are published; and the following address is put forward to the charitable public:—

'Persons walking through the streets of London, or of its suburbs, can hardly fail frequently to have seen lost dogs in a most emaciated and even dying state from starvation.

'The committee would willingly hope and believe that no one who is capable of appreciating the faithful, affectionate, and devoted nature of the dog, can have seen any of these intelligent creatures in that state without feeling an earnest wish that there were some means established for rescuing them from so dreadful a death, and restoring them to usefulness.

'The object of this institution is to give humane persons an opportunity to relieve so much misery.

'The parent Home is now established in Holloway, and all persons finding dogs in the state above described are entreated to convey them to it, and all persons losing dogs are requested to apply at once to 14, Hollingsworth Street, St James's Road, Holloway.

'In proportion as the funds will admit of it, receiving-houses will be established in all parts of London, from which dogs will be conveyed to Holloway.'

This address may sound to many people like a parody of an ordinary appeal on behalf of a reformatory, or some refuge for lost and repentant outcasts. If Dean Swift had written such an address in his chapters upon the Yahoos, no sense of fitness would have been outraged; and yet, for all this, the charity is founded on a sound principle. It begins precisely where the Society for the Prevention of Cruelty to Animals leaves off; and we are not surprised to find the rooms of that association placed at the disposal of the dog committee, and Mr Middleton, the secretary, undertaking to receive subscriptions and donations.

The Home at present consists of three cab stables, in a yard at the back of the house before mentioned. A man is engaged to take charge of the animals, to answer the questions of applicants who bring dogs or claim them, and to keep the necessary record of incomers and outgoers. When a dog becomes a member of this happy family, his name (if he has one) and his breed are entered in a book under a particular number, a tin ticket, with a corresponding number, is hung round his neck like a locket, and he is provided with a place

in a certain trough, basket, box, cage, or tub, according to his temper and his bodily health. Take the dogs altogether they are tolerably well-behaved, and wonderfully like human beings under similar circumstances. They are dirty, and require to be washed; they are diseased, and require to be cured (or killed); and they are hungry, and require to be fed. It is a melancholy fact, and one not at all peculiar to animals generally, that the most worthless dogs have the largest appetites, and make the most noise. The keeper knows about a dozen of his large-headed, thick-limbed, gaping, shambling pensioners by the title of the 'wolves,' and, to use his own words, 'they are a precious sample.' They form the 'dangerous classes' of the Refuge; they do nothing but eat and yell, are never likely to be reclaimed, and belong to that large family of gift dogs which people never will look in the mouth.

Within a period of four months about 170 have been taken in. 100 of these have gone, some having been given away (the Society does not sell dogs), some having been reclaimed by the owners, and some having died, leaving about 70 now in the Home. Only one Newfoundland and one King Charles spaniel have found their way to the Refuge. The majority of the animals are 'rough dogs,' answering to regular street tramps, Scotch terriers, mongrel 'tykes,' and a few fighting dogs. The ladies on the committee must be rather astonished at the infinite varieties of the dog as registered in the Society's books; and even at the appearance of a few of those square-headed, black-nosed, red-jawed bull-terriers, who creep into the Refuge, like broken-down prize-fighters, too old to earn a living in a professional way. Some of the inmates are flabby, blinking, weak-minded animals, who seem contented with their position, and utterly incapable of supplying their daily physical wants without the aid of a master. They form what we may call the idiot ward of the asylum. Others are knowing, experienced street dogs, not unwilling to be housed and looked after during the winter months, but who, with the first signs of summer, will get away if they can, to trot along the roads with their heads downwards, to slink into butchers' shops when no one is looking, and to be chased out between the legs of the passers-by with something very like a rump-steak in their mouths. Some of these dogs were brought in during the two severe months of December and January, a period when the incomers far exceeded the outgoers. This helps to show that the dog-refuge does not differ very materially from many other refuges.

The charity, like all other charities, has had difficulties to contend

with, and has made mistakes at its commencement, which it has since rectified. It had a consulting surgeon to look after the dogs, after the fashion of more ambitious charities, but now the manager is the doctor to the establishment. The difficulty about giving the animals open-air exercise has not yet been got over, simply because the society have not yet sufficient funds to purchase a piece of land in or near London.

The chief imposition practised on the society comes in the shape of old, glassy-eyed dogs, brought by boys who have grown tired of these animals. If we want to see real cruelty to animals, we must go amongst children. When an old dog has been worn out in play-grounds or in plunging for pieces of wood in ponds and canals, its youthful owners and tormentors often try to dispose of it at the Refuge. The manager, however, is prepared for these applicants, and also for those dog-fanciers who endeavour to own animals they have never lost. The following are the rules and regulations of the society:—

'1. Any dog found and brought to the Home, if applied for by the owner, will be given up to his master on payment of the expenses of its keep.

'2. Any dogs lost by the subscribers and brought to the Home, will be given up free of all expense.

'3. All unowned dogs, after they have been in the Home for some little time, will be given away; but, as this is a charitable institution, it is hoped that all who can afford it, will make a donation towards the expenses of the Home, in proportion to the value of the dog selected.

'4. To prevent dog-stealing, no reward will be given to persons bringing dogs to the Home. The committee hope that, to persons of ordinary humanity, the consciousness of having performed a merciful action will be a sufficient recompense.

'5. It is intended, as soon as suitable arrangements can be made, to have a place especially prepared for the reception of dogs belonging to ladies and gentlemen who may wish to have care taken of them during their absence from home.

'6. None but governors of the institution shall be eligible for the committee, or vote at any meeting of the institution.

'7. A donation of five pounds constitutes a life-governor; and the yearly subscription of five shillings and upwards, an annual governor of the institution; and any lady or gentleman collecting small sums to the amount of five pounds, will be considered a life-governor.'

The subscriptions, donations, and collections, if small, flow in from all quarters, some coming from Ireland, and different parts of the country. They represent an income of about £90 for four months. Scarcely half-a-dozen subscribers appear under such fancy titles as 'Pompey: an old pet;' 'Puff: a pet;' 'Jacob Faithful;' 'Billy;' and 'A lover of dogs;' the rest giving their names and addresses in a bold and spirited manner. Public entertainments in aid of the Refuge have also commenced; and Mr William Kidd has given one of his 'gossips' under the heading of 'The Dogs' own Benefit Night.'

So far, the Refuge appears to be popular and well managed; but the committee is not altogether of one way of thinking. Some, perhaps the most humane portion, insist upon placing all the animals in the Refuge on an equal footing, and object to any dog being destroyed, rejected, or given up as incurable. Others, perhaps the most practical members, see the necessity which exists for checking the increase of the 'tykes;' the 'rest;' the standing balance which 'eats its head off,' never moves on, and becomes surplus dog population. Here the old workhouse difficulty, with hopeless paupers, is reproduced on a small scale, with animals performing the parts of men. How it will be got over, time alone will show, and the dissension, if the practical party carry the day, may probably cost the society a few subscribers.

The one objection to this charitable refuge is, that it is always trembling on the verge of absurdity. Its whole proceedings can hardly be so managed that they shall not appear to be a parody of institutions for the relief of human suffering; and it is only by a process of reasoning that we become its friends and supporters. The society stands upon firm ground when it claims the dog as the devoted companion of man; and it is assailable only in details—never in principle. The *reductio ad absurdum* argument is easily brought to bear upon these details, and it is just as easily employed in the defence of the society. Adopting the London tradition, that all stray dogs are converted into sausages, it can soon be shown that the Home must have an effect upon that particular trade, by cutting off the supply of the raw material. From this we jump to the conclusion that all opponents of the dog charity must be connected with the sausage interest, or must have a large capital invested in the pork-pie business. We have much pleasure in placing this argument at the service of the Society.

A GREAT MEETING OF CREDITORS.

IF any man be tired of musing upon that numerical abstraction, that perilous jungle for currency doctors, that legacy of Heaven-born ministers and ingenious financiers, the National Debt, and is desirous of changing his painful reflections upon the eight hundred millions of sterling money sunk and gone, for a glance at some of those people to whom this gigantic amount is owing—the national creditors—let him direct his steps towards the Bank of England on any of those great dividend-paying days that come round periodically in the heart of the four seasons. Let him enter on that side of the building which is known as the Rotunda (where the interest upon the national debt is paid, when claimed, in four quarterly instalments), and he will find himself in the midst of the crowd of large and small fundholders and annuitants, who have lent the country that money which has been sunk by Britannia in ruling the waves, and who are satisfied with a small and certain return for their capital.

A thorough stranger, looking at some of the national creditors who totter feebly in at the heavy swinging doors, might easily mistake this Rotunda (and especially the annuity-warrant office) for a building erected over a sacred and miraculous well, at which the sick and weary come to drink, and from which they depart with new life and hope. Amongst the bustling stockbrokers and lawyers, the City merchants and the bankers' clerks, come the lame, the blind, the palsied, the jaundiced, and the paralytic, who are led by relatives or servants up to the appointed corners, and are seated before the appointed books.

One national creditor slinks in, and looks round to see if he is observed, as if his design were rather picking pockets than drawing dividends. Speculative fancy may invest him with any character it thinks proper; but the most probable explanation is, that he is a thrifty father, fearful of being watched by a spendthrift son at the moment when he has drawn his little quarterly income. Perhaps he is a debtor, fearful of being dogged by duns; or a fraudulent bankrupt, who disappeared some years ago with a red wig and the name of Jones, and who comes back to reap the fruits of his concealed property in a gray wig and the name of Jackson. He seems jealous of any one looking over him as he signs the dividend-book, and appears

much relieved when he has obtained cash for his warrant, and is ready to leave the building. Perhaps he is some selfish old misanthrope, who has fled from kith and kin; who will die suddenly in some silent lodging before next quarter-day, without making any sign, and whose name will remain for ever in the records of unclaimed dividends.

Another public creditor is refreshing to look upon, notwithstanding his evident purse-proud vanity. He walks boldly in, accompanied by his son; both being full-blooded, well-fed, well-clothed supporters of their country. The father is glad to show the boy how 'warm' he is; and the boy, who has just attained his majority, is gathering the first fruit of a sum which was invested in consols, in his own name, when he was a twelvemonth old, and which has wonderfully increased at compound interest. There is no secrecy here. The father knows what his son has, and what he will yet have, and the son knows exactly what his father has to give him.

Finance makes us acquainted with strange companions. As some part of the interest of the national debt is paid by taking a pinch out of the poor man's teapot, or by lessening the size of his children's sugar-basin, so the national creditor may be an idiot in a bundle of rags, a crossing-sweeper in a good thoroughfare, a successful prize-fighter, or a thrifty cab-driver. One national creditor, standing at the paying-desk with sober steadiness, is a man who has passed much of his life in placing his head where his feet are now placed, and in singing comic songs for the amusement of the public. He is a well-known clown to a circus. Another national creditor, who seems to be perfectly familiar with the forms of the place, and who even undertakes to direct far more staid and business-looking personages, is neither an eminent stockbroker, a Lombard Street banker, nor a man who has passed his youth in mercantile bowers: he is a favourite low comedian.

Another public creditor appears in the shape of a drover with a goad, who has run in to present his claim during his short visit from Essex. Near him are a lime-coloured labourer from some wharf at Bankside, and a painter, who has left his scaffolding in the neighbourhood during his dinner hour. Next come several widows—some florid, stout, and young: some lean, yellow, and careworn,—followed by a gay-looking lady in a showy dress, who may have obtained her share of the national debt in another way. An old man, attired in a stained, rusty, black suit, crawls in, supported by a long staff, like a weary pilgrim who has at last reached the golden Mecca. Those who

are drawing money from the accumulation of their hard industry or their patient self-denial, can be distinguished at a glance from those who are receiving the proceeds of unexpected and unearned legacies. The first have a faded, anxious, almost disappointed look; while the second are sprightly, laughing, and observant of their companions.

Towards the hour of noon on the first day of the quarterly payment, the crowd of national creditors becomes more dense, and is mixed up with substantial capitalists in high check neckties, double-breasted waistcoats, curly-rimmed hats, narrow trousers, and round-toed boots. Parties of thin, limp, damp-smelling women, come in with mouldy umbrellas, and long chimney-cowl shaped bonnets made of greasy black silk, or threadbare black velvet—the worn-out fashions of a past generation. Some go about their business in confidential pairs; some, in company with a trusted maid-servant, as fossilized as themselves; some, under the guidance of eager, ancient-looking, girl-children; while some stand alone, in corners, suspicious of help or observation. One national creditor is unwilling, not only that the visitors shall know what amount her country owes her, but also what particular funds she holds as security. She stands carelessly in the centre of the warrant-office, privately scanning the letters and figures nailed all round the walls which direct the applicants at what desk to apply; her long tunnel of a bonnet, while it conceals her face, moves with the guarded action of her head, like the tube of a telescope when the astronomer is searching for a lost planet. Some of these timid female creditors, when their little claim has been satisfied (a thousand pounds in consols produces only seven pounds ten a-quarter), retire to an archway in the Rotunda, where there are two high-backed leathern chairs, behind the shelter of which, with a needle and thread, they stitch the money into some secret part of their antiquated garments. The two private detective officers on duty generally watch these careful proceedings with amusement and interest, and are looked upon by the old fundholders and annuitants as highly dangerous and suspicious characters.

Some bring their children with them, just as they would take them for a gossip to the chandler's-shop round the corner. The business of receiving dividends is looked upon as a piece of exhilarating dissipation in which it is proper for the whole family to participate. While the lawful female proprietor of stock is engaged with the clerks in the preliminary proceedings, her mother stands by to watch that she is not cheated, her father sits blinking at the counters and the

visitors in the recesses of the Rotunda, like an hospital patient waiting for his turn, and the children are left to stagger about the warrant-office between the substantial legs of grave capitalists who are the pride and glory of the City. When the pink or buff warrant has been changed for gold or notes, and the whole business admits of no further drawing out, the children are collected by the mother, while the grandmother scolds the blinking grandfather for not taking better care of them, and they are found lying upon their stomachs looking down a grating; probably under the idea of commanding a view of the gold-cellars.

Another public creditor is a countryman in holiday dress, accompanied by his wife, and who seems not to know exactly what he wants, or where he is to obtain it. He is shy of asking questions, and so is his wife, although she keeps quietly tugging at his arm; for they have heard that London is a sad place, and that every polite and well-dressed man is a sharper. So Agricola and his better-half keep wandering round and round for half an hour, until they can bear the suspense no longer. At last the provincial mind overcomes its doubts, and pours all its troubles, in provincial accents, into the willing ear of one of the Bank porters.

Another public creditor comes gasping in, attended by a tall, stout female companion, with a basket. Baskets, on great dividend days, are almost as fashionable as umbrellas; after these, come capacious reticules; some few of the creditors, or their attendants, carry the street-door key swinging on their fingers. The gasping creditor is small and thin; his legs are wasted, his body is awry, his back is bent forward almost into a hump, his chest is bowed inward, his breath is short, his eyes are staring, his mouth is half open, his fingers are long and bony, and the blue veins on the back of his hands are like cords. His dress is loose and wrinkled, and of a shabby, rusty black. His wife, his nurse, or his keeper—the stout, florid woman, with the basket—takes him up to the warrant counter, where he is not tall enough or strong enough to reach the book. It is tilted towards him, he leans over with a starting eye, a deep cough, and hard-drawn breath, to scan the proper line, and traces the course with one lean hand, as he signs his name with the other. It is curious to see that a great country, in seeking the sinews of its heroic wars, has not rejected the assistance of even such a feeble mannikin as this.

More withered, twitching women, crawl slowly up to the fountains of gold, until you think that the witches in Macbeth must have been large investors in the funds, and that these, their children, are now

drawing the fruits of their provident habits. Mother Shipton is here, or her lineal descendant, as punctually as the day, with Daniel Dancer, the traditional miser, with greasy butchers from Newgate Market; with faithful butlers, who never tampered with their masters' wine; with clean nurses, whose fortune it has been to fall upon the rose-beds of servitude; with young women, who draw their moderate dividends in gold, and look unconsciously amongst the young men, who are doing likewise, for a steady, well-to-do husband to share it. Pick-pockets occasionally stray in, done up in what they fondly flatter themselves is the true old stockbroker style, and are surprised to find that their disguise is immediately detected by the officers on duty. Sometimes these gentry evade the law by securing the victim in marriage whom they intend to rob—for lovely woman is very weak, and some gentlemen are very agreeable.

Another public creditor is borne in like a nodding Guy Fawkes in November, by two companions, on an old, brown, creaking Windsor chair; a mere bundle of dirty rags. She is placed in her chair before the long annuity counter, gazing at the wall with a glassy, meaningless eye, and with her chin sunk down upon the breast of her tattered outer garment. The forms of the office require that she should apply in person, and the two humble friends who take care of her—a man and woman—have brought her up to show her. Her claim is small, and a power of attorney is too costly for her slender resources. A difficulty occurs about signing the book, and the two companions shout loudly in both her ears; but they might as well attempt to awaken the dead. The long old cowl-shaped bonnet does not even move in reply, and the glassy eyes still retain their watery stare of vacancy. A principal clerk is summoned from a private desk to decide in this emergency, and the result is that she is allowed to make the sacred sign which stands for new life in either state of existence. When first she became a creditor of the state, she was young, and, perhaps, sightly, and able to write her name with the best of the small fund-holders; but that was in the good old days, when George the Third was king, and Heaven-born ministers were struggling with the Corsican. Now, her helpless withered arm is lifted up, and clumsily made to form a thick inky cross, with a juicy full-charged quill, as it might have been unresistingly lifted up and made to stab a Rotunda beadle. When her money is, at last, procured, it turns out to be some thirty shillings, which are passed before her listless eyes to give her comfort, and then placed in her pocket under her cold, bloodless, listless touch.

UNDERGROUND LONDON.

CHAPTER I.

DREAMS AND THEORIES.

THERE are more ways than one of looking at sewers, especially at old London sewers. There is a highly romantic point of view, from which they are regarded as accessible, pleasant, and convivial hiding-places for criminals flying from justice, but black and dangerous labyrinths for the innocent stranger. Even now, in these days of new police and information for the people, it would not be difficult to find many thousands who look upon them as secret caverns full of metropolitan banditti. When the shades of evening fall upon the City, mysterious whispered 'Open sesames' are heard in imagination near the trap-door side-entrances, and many London Hassaracs or Abdallahs, in laced-boots and velveteen jackets, seem to sink through the pavement into the arms of their faithful comrades. Romances, as full of startling incidents as an egg is full of meat, have been built entirely upon this underground foundation, and dramas belonging to the class which are known as 'sensation' pieces, have been placed upon the stage to feed this appetite for the wonderful in connection with sewers. I have some recollection of a drama of this kind that I saw some years ago at one of the East-end theatres, in which nearly all the action took place under huge dark arches, and in which virtue was represented in a good strong serviceable shape by an heroic sewer-cleanser. Much was made of floods and flooding, which the flusher, who played the villain of the piece, seemed to have completely under his control; and it was not considered at all singular by the audience that a dozen men and women should be found walking high and dry under these mysterious arcades, as if in some place of public resort.

Imagination generally loves to run wild about underground London, or the sub-ways of any great city. Take away the catacombs of Paris—the closed, magnified, mysterious catacombs—and the keystone of a mass of French fiction falls to the ground. The dark arches of our own dear riverside Adelphi—familiarized, not to say vulgarized, as they have been by being turned into a thoroughfare to

coal-wharves and halfpenny steam-boats—are still looked upon as the favourite haunts of the wild tribes of London, or City Arabs, whatever these may be.

A popular notion exists that those few sloping tunnels are a vast free lodging-house for hundreds of night wanderers; and that to those who have the watchword they form a passage leading to some riotous hidden haunt of vice. This belief prevails very largely amongst very quiet, respectable people; the class who live in the suburbs, feed upon 'serious' literature, shudder when the metropolis, the modern Nineveh, is only mentioned in conversation, and who, by no chance, ever heard the chimes at midnight, or were caught wandering about the streets after nine P.M.

The passion for dreaming about sub-ways, however, is not entirely confined to people who are totally ignorant of the existing out-door world. Hundreds of traditions are cherished about secret passages said to have extended from St Saviour's, Southwark, under the river Thames, or from old Canonbury House to the Priory at Smithfield. The people who cherish these traditions are not easily deceived by any fancy stories about life in London as it is now, they are too knowing for that; but they like to have their little dream of wonder about life in the middle ages. In vain does Mr Roach Smith write, or do Archæological Societies lecture, upon these fragments of old masonry, laid bare during the building of city warehouses or suburban settlements. The poor old monks are not to be saved so easily from a few damaging theories regarding their presumed habits, and the vestiges of ancient conduit heads, or covered ways to protect water-pipes,* are always thought to be the remains of murder-caverns, or cells for the unhappy victims of religious hatred. A piece of ordinary rust, or of moist red brick, is soon pictured as the trace of blood; and those who do not take this sanguinary view of these unearthed sub-ways, are always ready to regard them as cellars full of buried gold.

Next to the romantic way of regarding sewers there is the scientific or half-scientific way, which is not always wanting in the imaginative element. I remember attending an exhibition, about four years ago, at the Society of Arts, which, although it consisted only of engineering plans for the improvement of London sub-ways, was amusing from the unpractical character of the schemes proposed.

A number of designs were submitted to the Metropolitan Board of

* The water-pipes used in old times were not always embedded in the earth as they are now, but enclosed within a capacious arch of brickwork, into which workmen could descend to repair any decay or accident.—*Ellis's History of Shoreditch.*

Works for the total sub-surface reconstruction of the metropolitan streets, and these designs—about forty in number—were referred to a committee of eminent engineers, whose task it was to give away certain money prizes. Nearly all the designs, as far as I recollect, exhibited the same features: a centre tunnel under the road-way, accessible by traps from the street, and containing the different pipes for gas, water, telegraphic wires, and sewage. The plan that got a prize of one hundred guineas proposed to have arched brick vaults, extending from the houses on each side of the tunnel, giving a solidity to the roadway, and increasing to a great extent the cellar accommodation of houses and warehouses. Another plan, which got a prize of fifty guineas, had no central tunnel under the roadway, but provided for the same purposes two side tunnels running parallel to each other, and connected with the houses on either side. The difference in the estimate of cost of the two plans was very great; the central tunnel scheme requiring something like thirty-six pounds sterling the lineal yard to carry it out; and the side tunnel scheme being estimated to cost only fifteen pounds for each lineal yard. As the latter plan had two tunnels to construct in the place of one, the great difference in cost must have arisen, if the calculations were correct, in the great area which the central tunnel projector proposed to build over with vaults. Many of the schemes exhibited were enlivened with pictures of the father of a family going down under the roadway in front of his house to see that the gas and water pipes were in proper order, and that no one had run away with the main sewer. A little more fancy on the part of the draughtsman might have represented whole parties of visitors inspecting the underground labyrinth as they would a conservatory at an evening party. Both the prize plans were regarded as very ornamental and excellent as pictures, but too expensive for practical application. The short central tunnel in King Street, Covent Garden, a pure experiment on the part of the Board of Works, undertaken, perhaps, to silence theorists, may appear to have been copied from the first plan; but, copied or not, it will probably be the only piece of fancy sub-way that London will see during the present century. The huddling together of gas and water pipes and telegraphic wires on each side of the New Road, to make room for the Metropolitan Railway, is some approximation to the second plan, though very hurriedly and rudely carried out.

If we feel disposed to examine the scientific-theoretical way of looking at sewers, there is no lack of material, and we may be at once surrounded by almost as many 'doctors' as we should find at a meet-

ing held to denounce the Bank Charter. It is a peculiarity of theorists upon sewers and drainage that they nearly all pull in different directions. Their name is legion, but we should find it difficult to gather half-a-dozen of them together who would agree upon any consistent scheme of drainage. The two great plans that have occupied public attention for many years have been the purification of the Thames and the utilization of London sewage. It is easy to talk about a noble river being made the flowing cesspool of some *three hundred and sixty-three thousand inhabited houses* (according to the census of 1861) and of some two million eight hundred thousand inhabitants. It is easy to talk largely of ninety millions of gallons of sewage washed away every day through costly sub-ways by two hundred millions of gallons of rainfall, when they contain a daily fertilizing value of three hundred and sixty pounds sterling, or a sum that would reach more than one million pounds sterling by the end of a year. It is this muddy stream, trickling from innumerable house-tops, rushing down thousands of gullies, oozing through beds of gravel, draining off marshy meadows and ploughed land, or flowing from thousands of dwellings, that helps to wash out the hundreds of downward sewers and their miles of tributary channels. This process of washing scatters and dilutes the valuable elements of fertility, until they are said to be lost beyond all hope of recovery. Men of science, capitalists, and social reformers, have consumed many years and much money in trying to restore this lost mass of valuable sewage to the hungry land, but nothing practical and remunerative, in a commercial sense, has ever been put before the public.

'Considerable works,' says Mr Austin, 'of the most expensive kind, were constructed for distributing liquid, very nearly worthless as manure, over a district obtaining the valuable stable manure of the metropolis, at the most economical rate, by means of the return carts which convey to London the produce of the market-gardens, and which would otherwise return empty. In fact, practically, this was little more than a company for supplying the market-gardens of Fulham with water during periods of drought; and although, no doubt, a beneficial service, it will readily be imagined that the saving of labour of hand-watering over a limited district of garden-ground would produce no adequate return for so costly an establishment.'

Messrs Hofmann and Witt, the eminent chemists employed upon a report for the Government in 1857, give no very favourable opinion about the utilization of sewage.

'Everybody,' they say, 'admits the necessity of removing the

daily excreta of so vast a population as that of the metropolis; of removing them rapidly, completely, and beyond the limits within which their decomposition would spread discomfort and disease.

'All admit, moreover, that the excreta of which we have to rid ourselves possess a very considerable value in an agricultural point of view, and that it would be highly desirable to recover the valuable matter.

'These points being granted, the question resolves itself into this:—Have we the means of accomplishing the latter desideratum, whilst satisfying the former condition?

'An inquiry into the nature of the valuable matter carried off in our sewers, an attentive examination of the chemical properties of the constituents, together with the consideration of the extraordinary and constantly-increasing degree of dilution in which they exist, cannot fail to impress the chemist, on purely theoretical grounds, with the magnitude of the difficulties which oppose themselves to the successful accomplishment of the task.

'Nor do these difficulties diminish if the question be submitted to the test of experiment.

'Notwithstanding the numerous proposals which have been made —notwithstanding the variety of patents which have been taken out, —we have no hesitation in stating our conviction that the *problem of profitably recovering the valuable constituents of sewerage remains up to the present moment altogether unsolved;* and very faint indeed are the hopes that the progress of chemical discovery will supply the means of so doing. The valuable constituents of sewage are like the gold in the sand of the Rhine; its aggregate value must be immense, but no Company has yet succeeded in raising the treasure.

'Nevertheless, on considering the immense value of the matter thus annually lost, and remembering that it nearly equals that of the whole quantity of guano imported annually into the United Kingdom, it would be unwise rashly to abandon this source of wealth without the most strenuous efforts to save at least a portion of it.

'The only chance that remains of accomplishing so desirable a result would appear, so far as we can at present judge, to consist in employing the whole or a portion of the London sewage for the purposes of irrigation.

'In devising, therefore, means for rapidly and effectually ridding the metropolis of the sewage, it is desirable that they should not exclude the possibility of giving this mode of utilization a fair trial.

'We have pressed the claims of the irrigation scheme in the

accompanying Report, *not* because we are sanguine as to its success, but because of the numerous propositions which have been made for the profitable disposal of the London sewage, it appeared to us the only one which deserves seriously to be entertained.

'If a more thorough examination of this scheme should lead to its rejection—and we almost fear this will be the case—if we have to give up the idea altogether of recovering the valuable constituents which are carried off in our sewers, then the Metropolitan Main Drainage Question, divested of one of its principal elements of complication, resolves itself into a problem, the solution of which belongs to the engineer alone.'

We have been taunted with the superior wisdom of the despised Chinese, who have no elaborate underground sewage system, and who, instead of carrying away their floods of sewage wealth into the sea by tunnels built at the cost of millions of money, gather it every morning by public servants with more regularity than our dust is called for by the contractors, and take it away to nourish agriculture. Our reply to this taunt is, that people (adopting the vulgar superstition) who are as numerous as ants, and who have to live in boats because the land is too crowded to hold them with any comfort, must be often at their wits' end to procure food, and are, therefore, no models for a well-to-do civilized nation to copy.

The two chief plans put forward about thirteen or fourteen years ago to secure the sewage refuse as manure were both carried so far as to form two public companies with Acts of Parliament. The plan of one company was to collect the contents of some of the Westminster and Pimlico sewers, and convey them by a deep underground channel to Hammersmith, where a steam-engine and other machinery were to distribute the manure in a liquid state to the market-gardens of that neighbourhood. The plan of the other company was to collect the contents of three main sewers falling into the Thames between Vauxhall Bridge and Westminster Bridge, and, after allowing the liquid part to flow into the Thames, to deprive the refuse of its offensive smell, and sell it as manure in a solid state. Both these projects fell through from their presumed commercial impracticability; but numberless plans and suggestions have, at different times, been brought before Government commissions, the old Commissioners of Sewers, the present Metropolitan Board of Works, and the City Commissioners of Sewers. Even no further back than 1857, when the great intercepting scheme of the Metropolitan Board of Works, which is now in rapid progress towards completion, was under discussion, about one

hundred and forty different plans were sent in by well-meaning amateurs, competent engineers, and persons interested in the great sewage question. Some of these proposals naturally bore the well-known trade mark of Laputa, while others were almost practical in all their details—not quite. Without any wish to speak disrespectfully of sewage, I have a secret sympathy with old Sir Thomas Browne's feeling, and regard this daily mass of muck as a melancholy adjunct of our fallen state. Sewage, whether fluid or solid, mixed or unmixed, is very much like our convicts, everybody wants to get rid of it, and no one consents to have it. The hundred and forty gentlemen who kindly came forward uninvited to suggest a method of purifying the metropolis, were compelled, in the main, to suggest that some selected spots should receive what London wished to reject. These spots were not Stratford-on-Avon, Windsor Park, the Crystal Palace, the South Kensington Museum, nor Belgrave Square, for very obvious reasons; but inferior settlements, inhabited by inferior people, in the inferior outskirts. Most of these unfortunate places showed no sign of indignation, because they were ignorant of the dark propositions for their defilement lurking in blue-books, or hinted at amongst the technicalities of a Government engineering report. One favourite proposition was to defile the sea, near the coast, and poison the great salt-water baths to which London resorts every summer for health and pleasure. Fortunately for the bathers the sea opposed these propositions in a quiet chemical way. The action of marine salts upon sewage—not to put it too scientifically—is so offensive, that fresh water must always be the first diluting agent employed before the whole mass is pumped into the sea.

Amongst the different schemes lately placed at the service of the country for intercepting and removing the London sewage, many proposed to divide the metropolis into sewage districts, and deal with the offensive material on true local self-government principles. One gentleman proposed to furnish each house with three iron tanks, hermetically sealed, in which the house sewage was to be collected each week, and then carried by drays to some railway, and then by excursion trains thirty miles into the country. Another gentleman proposed similar tanks supplied with charcoal and ashes as deodorizing boxes; and another proposed the Chinese plan of preserving the sewage for certain companies, under penalties, which companies were to manufacture manure by boiling the sewage with clay or sawdust. Other projectors proposed to favour the mouth of the Kensington Canal, the bank of the river Lea, the Deptford Creek near Greenwich,

and Battersea Creek, with four great divisional depôts, where the whole of the London sewage was to be conveyed and deodorized. Another gentleman proposed to bring half the southern sewage across the river at the Thames Tunnel, and the other half across the river in iron pipes, at some higher spot not specified, the material, when delivered, to be filtered, deodorized, and utilized. The peculiarity of this scheme was the bold proposal to defile the Thames Tunnel, and wake up this wonder of joint-stock credulity from its long sleep of idleness. Another projector proposed to favour Erith, Rainham, Wandsworth, and Putney with four great sewage-receiving depôts; or else to carry the whole mass to Newhaven, in Sussex, and throw it into the sea. Another gentleman suggested that the sewage should be collected from the houses and streets into large portable cisterns floating in the river, and that at stated times steam-tugs should call at each station and tow this unsightly fleet far out to sea to get rid of its contents. Several other gentlemen proposed to moor vessels at the mouths of each of the existing sewers which run into the river (one hundred and eighty-five in number), and to connect the vessels with the sewers by means of iron or flexible pipes. The water of the sewage was to pass off by filtration, and the more valuable matter was to be left in the vessels. When they had loaded themselves, like milkmaids, at the sources of supply, these barks were to hawk their contents about at any ports where manure was likely to be in demand. No provision seems to have been made for back cargoes.

One gentleman wished to take the sewage away in iron vessels, and drop it quietly, when no one was looking, into the sea; while another gentleman, evidently thinking that criminals ought to suffer a little sewage infliction for their offences, proposed to form great deodorizing caverns from Blackfriars Bridge to the House of Correction. Another projector proposed to deal with the mass as if it were gas or water, and to lay it on to the country in main and branch pipes. Several projectors hit upon this plan, and two proposed to carry it out by pumping the sewage up to a sufficient height to allow it to flow along pipes stretching in different directions into the country. Another projector suggested that the railways should be favoured with four great out-of-town main sewers running parallel with their lines of roadway. Another gentleman boldly proposed to cut the Thames in half, by diverting the stream from the river at Teddington to afford a pure water-supply for London. The sewers were to be scoured by this diverted stream, and the sewage was to be removed by means of a tunnel, and emptied into the sea at Rochford, in Essex. The southern

sewage was to be conveyed across the river to the north side at the Thames Tunnel; and the main feature of this scheme was to provide a river channel, up which the salt water should flow unadulterated to London. Another projector proposed to divide the Thames into tidal Thames and stream Thames, and to stop the sewage, by deodorizing works, from flowing into the river. Certain other projectors proposed to take one-half of the Thames Tunnel as a sewer for conveying the northern sewage to join the southern sewage. When combined, they suggested, like many others, that the whole mass should be taken to some point of the south coast and poured into the sea. One projector suggested that all communication between the sewers and the river should at once be cut off, and the sewage preserved for manure; and a lady—the one female projector amongst the number—proposed to have sewers stretching from all parts of London, from which the sewage could be poured in fertilizing streams all over the country on each side of the Thames. Her final reservoir was still the unoffending sea; and she proposed to construct small reservoirs, at convenient distances, along the sewers, which were to be opened as shops, where the farmers could call and purchase cheap liquid manure. Another projector, more fanciful than any of his competitors, proposed to carry the sewage through the air by vast atmospheric tubes on both sides of the river, beginning somewhere about Putney, and terminating, as usual, in a great deodorizing reservoir on the sea-coast. Another projector proposed to construct two great sewers *under* the river Thames —a favourite but costly plan;—and another gentleman thought he could deodorize sewage, and ventilate the sewers by passing all the smoke of London into them. Another projector suggested that sewage should be first deodorized and then totally consumed by burning, and asked for Government aid to commence experiments on the power of fire to consume solid sewage. He suggested that Erith should be the locality favoured with these terrific experiments. Another projector proposed that the Thames should be purified by throwing into it about two thousand tons of chloride of sodium per week, which would cost about thirty-nine thousand pounds sterling per annum; another gentleman proposed to boil the sewage slightly, by way of deodorization, before it reached the sewers; and another projector suggested that the ordinary course of things should be reversed, and that instead of the Thames being flushed by the sewers, the sewers should be so altered that they should be flushed by the river.

Most of these plans, with a hundred others, are based upon an idea that the Thames would be converted into a crystal stream, if the

sewage now flowing into it from nearly two hundred downward main sewers could only be diverted. The plan which Mr Bazalgette is now carrying out, as the engineer of the Metropolitan Board of Works, is certainly framed to divert this sewage by a system of intercepting and outfall sewers; but Mr Bazalgette and Mr Haywood, and even their Government opponents, never looked forward to such a purification of our noble river. There was a time, within the memory of our fathers, and not more remote than fifty years ago, when dozens of fishing punts were moored between the London bridges, and the fishermen, mostly amateurs, had no reason to be discontented with their hauls. In those days, if business was slack at the office, the warehouse, or the shop, or if the morning postman brought no letters that took more than an hour to answer, the old gentlemen used to take their hats, wink at their clerks as they passed out under the shallow pretence of keeping appointments, and slink down the winding alleys towards the river. At one of those little, brown shops, a few of which are still left as vestiges of a decayed trade, where a tapering rod hung out like a barber's pole, and a glistening stuffed fish over the low doorway, spun round like a doll at a marine-store with every breeze of wind, they called in for the tackle which they had not the courage to carry through Cheapside or Cornhill, and were soon pushed off by sympathizing watermen into the middle of the stream. Those were the days of Gravesend hoys; of a belief in long distances, and of five-shilling rowing fares to Chelsea; but with all this peace and quietness, it is doubtful if the river was without stain and without reproach. It had nothing to do then with the refuse of the one million of people on its banks, for the cesspool system was strictly applied to houses, and the sewers conveyed nothing but rain and waste water. For all this, however, competent authorities decline to believe in its crystal clearness, and Messrs Bidder, Hawksley, and Bazalgette, have said as much in their great report of 1858, on Metropolitan Main Drainage. 'Within the metropolis,' they say, 'the Thames never could have been a "silvery" stream. There can, indeed, be no doubt that if every particle of sewage were removed from the river, the Thames, as it now exists, with its rapid tide and its enormous traffic, must still remain a muddy water, differing but little in appearance from its present condition. The referees * themselves admit they do not anticipate that the Thames will present the appearance of a clear

* Messrs Galton, Simpson, and Blackwell, Government Referees on the Metropolitan Main Drainage Scheme. 1857.

stream until the projecting headlands at the termination of every Reach shall have been protected from being washed away bit by bit.

'Several causes have contributed to the present condition of the river and of its banks. The removal of Old London Bridge has greatly augmented the tidal scour; the improved drainage of the land has brought down the upland waters with increased expedition after rainfall; thereby diminishing the quantity of water in the river in hot weather, and adding to the quantity of earthy matters conveyed by the floods. The agitation of the water by the action of steamboats, and the augmented velocity of the current induced by the removal of obstacles to the tidal flow. These operate to retain the mud in a state of suspension.

'The scour, the floods, and the agitation are the most influential contributors to the existing appearance of the river, and these will remain in operation and continue to produce like effects after the sewage shall have been withdrawn. We may, therefore, at once state, that the production of a clear or sensibly purified stream, in or near the metropolis, will prove a hopeless task, unless some powerful ruler shall in a future age determine to improve the appearance of the river at the expense of its commerce, by damming back the tide at Greenwich or Woolwich. Were there no population whatever existing on the Thames, the banks of the river, from its mouth to above the western limits of the metropolitan area, would, in the present condition of things, be covered with mud deposits, in consequence of tidal action alone, and the water remain almost as turbid as it is now.'

This is rather a rude blow given to a thousand of those splendid dreams which are fed even by such muddy food as the London sewage. Turning our backs, to a great extent, upon sewer theorists and their theories, it may be well to make something like a stock-taking survey of underground London. Much capital has been sunk, year after year; much more will have to be sunk; and many rate-payers may like to hear, in a gossiping way, what they have got for their money. The task of collecting this information and setting it forth is not quite so agreeable as a tour in Iceland; but some harmless drudges must do this parochial work, as some men must black boots, empty dust-holes, and sweep crossings. It is good sometimes to put the great epic, the great picture, or the great statue aside, and to walk round the parish pump, with a desire to know something about it.

CHAPTER II.

GOSSIP.

IF the poor old ghost of Dr Johnson had not been so extremely hard worked of late years, it would be a pleasure to call it up (of course in connection with the ghost of Mr Boswell), in order to get a satisfactory definition of a main sewer. The definitions of the great doctor may not always be conveyed in the most simple language, but then they come upon us with a full booming sound of undeniable authority. The boldest caviller never questions an opinion beginning 'it is laid down by the great lexicographer,' and hence the value of such an opinion on a subject surrounded by so many theorists, rival engineers, boards, and technicalities as sewers.

As we cannot avail ourselves of the doctor's defining wisdom, we must scramble through the entrance to our subject as we best can, and state, with no dogmatic precision, that main sewers are only properly so called when they follow the run of water-courses. This is a definition that most sewer engineers would not, perhaps, hesitate to endorse, and it shows us the natural, melancholy connection between 'limpid streams' or 'purling brooks,' and black, slimy, muddy, underground rivers, that no one ever thought of writing a sonnet to since poetry was born.

A volume of antiquarian sentiment might easily be written on the old London water-courses, or bournes. There is the ancient stream called Walbrook, which runs into the City, from what were once fields between Islington and Hoxton. In old times it turned a number of corn-mills, and even as late as 1810 it was found turning a lead-mill near the turnpike in the City Road. In its younger days, like all similar streams, it was spanned by many bridges throughout its course; and its lower end was wide enough to allow barges to be rowed up it as far as Bucklersbury to a spot now called Barge Yard. In 1489, the Lord Mayor gave two hundred marks towards vaulting it over near to the parish church of St Margaret's, in Lothbury. This river discharged into the Thames east of Dowgate Dock. Its line within the old City wall and ditch was by Walbrook, Princes Street, crossing beneath the Bank and along Bell Alley to London Wall, and thence out of the City, across Old Street, to its source. It

had several branches. Its bed was thirty-two feet beneath the present level of Princes Street, as was discovered when the London Bridge sewer—its great substitute—was built, and its waters have trickled under the foundations of the Bank. Even now, in its present dark obscurity, it has reason to be proud. It may consider itself the father of one of the lustiest young sewers in the metropolis; for the London Bridge sewer and its neighbour, the Fleet, are the largest channels of underground London.

The Fleet itself—the 'Turnmill Brook'—the 'River of Wells'—bubbles up in a hundred volumes. It trickles through poems; forms little pools in plays; and sparkles, here and there, in less imaginative pages. Some historians of the Fleet Brook have regarded it with more veneration or enthusiasm than others, and have mused over its probable condition in the remotest times. They have pictured the period when Roman villas studded its banks; when Snow Hill was famous for its snowdrops; when Saffron Hill was a wooded slope like the Thames' banks at Richmond; and when the stream wandered down from its source in the Hampstead Hills, carrying swarms of silver trout into the Thames. They have dreamed over the time when large vessels may have floated up as high as King's Cross, where this black river is now carried over the underground Metropolitan Railway in an iron pipe or tunnel. Some excuse for this dream about an extinct inland river may be found in the tradition that an anchor was found some years ago as high up as the site of the Elephant and Castle, at Pancras Wash, where the road branches off to Kentish Town.

The Fleet Brook has always been celebrated for its periodical floods in winter. It is the most unruly sewer in the whole vast property handed over in trust to the Metropolitan Board of Works. In 1846 it burst its bounds, doing much damage to property along its sides, particularly between Peter Street and Black Hill. Its embankment walls were much injured, three houses and a warehouse in Vine Street were thrown down, and a slaughter-house and mill-house were also undermined. The flood rose five feet in the houses which fell down, and in some places to the height of six feet above the pavement. Last winter it was impassable for many weeks; and thirty or forty years ago, after continued rains, or a sudden thaw with much snow upon the ground, it has often broken up its arches, and flooded the surrounding neighbourhood. A flood of this kind is recorded, which took place about 1820, when several oxen were drowned, and many butts of beer and other heavy articles were carried

down the stream, from houses on the banks into which the water had broken. The greatest flood recorded in connection with the Fleet, during the present century, is one which happened in January, 1809. At this period, when the snow was lying very deep, a rapid thaw came on, and the arches, not affording a sufficient passage for the increased current, or storm-waters, the whole space between Pancras, Somers Town, and the bottom of the hill at Pentonville, was in a short time covered with water. The flood rose to the height of three feet in the middle of the highway; the lower rooms of all the houses within that space were completely inundated, and the inhabitants had much of their goods and furniture damaged which they had not time to remove. Two cart-horses were drowned, and for several days persons were obliged to be conveyed to and from their houses, and to receive their provisions in at the windows, by means of carts. Much of the water of the Fleet Brook, originally drawn from springs on the south side of the hill between Hampstead and Highgate, by Ken Wood, where it forms several large ponds, has been carried off in pipes by the Hampstead Water Company (now merged in the New River Company) for the supply of the adjacent neighbourhood.

That portion or branch of the Fleet Brook down in the London valley, known by the unsavoury title of the Fleet Ditch, being part of the old town or City ditch, that ran round the walls for about two miles, is even more closely embanked with anecdote, history, and poetical satire. It was once supplied with the waters of certain local wells on each side of its course, such as Clerken-well, St Chad's-well, Am-well, St Pancras-wells, Bagnigge-wells, and others. It was also fed by a small brook, called 'Old-bourne,' the god-father of Holborn.

'Oldbourne, or Hilborne,' says Stow, 'broke out about the place where the bars do now stand, and ran down the whole street till Oldbourne Bridge, and into the river of the Wells or Turnemill Brook. This bourn was likewise long since stopped up at the head, and in other places where the same has broken out, but yet till this day the said street is there called High Olborne Hill, and both sides thereof, together with all the grounds adjoining, that lie betwixt it and the river Thames, remain full of springs, so that water is there found at hand, and hard to be stopped in every house.'

The great fire of London stopped short in this direction at Holborn Bridge. The four bridges over the Fleet Ditch were Holborn Bridge, Fleet Lane Bridge, Bridewell Bridge, and Fleet Bridge. 'After the great fire,' says Mr Cunningham, 'Fleet Ditch was con-

verted into a dock or creek, about forty feet in breadth, at a cost of about twenty-eight thousand pounds sterling, called the "New Canal." It was an unprofitable speculation. The toll was heavy, the traffic inconsiderable, and in spite of its new name and the money that had been spent upon it, the Ditch was doomed to continue a common sewer.'

As early as Ben Jonson's days, the Fleet Ditch was considered a fair object for humorous satire and description. In the 'Famous Voyage'—an account of an adventurous journey up the stream—the following passage occurs:—

> 'All was to them the same; they were to pass,
> And so they did, from Styx to Acheron,
> The ever-boiling flood; whose banks upon,
> Your Fleet Lane Furies and hot cooks do dwell,
> That with still scolding steams make the place Hell:
> The sinks run grease, and hair of meazled hogs. . . .
> Cats there lay divers.'

The Ditch was a nuisance in Cromwell's time, 'by reason of the many encroachments thereupon made, by keeping of hogs and swine therein and elsewhere near it.' As the 'New Canal,' with its sides built of stone and brick, its wharves and landing-places, it still maintained its repulsive character. Animals seem to have fattened in its thick stream, to judge by the following passage in the 'Gentleman's Magazine' for 1736:—

'A fatter boar was hardly ever seen than one taken up this day (August 24th, 1736), coming out of Fleet Ditch into the Thames. It proved to be a butcher's near Smithfield Bars, who had missed him five months, all which time he had been in the common sewer, and was improved in price from ten shillings to two guineas.' A prodigal son, missing for this period, would probably have been reduced rather than increased in value.

Gay, in his 'Trivia,' has had a fling at the old Fleet Ditch:—

> 'If where Fleet Ditch with muddy current flows,
> You chance to roam; where oyster-tubs in rows
> Are ranged beside the posts; there stay thy haste
> And with the savoury dish indulge thy taste:
> The damsel's knife the gaping shell commands,
> While the salt liquor streams between her hands.'

Of course, the oyster-shells were thrown into the 'slow-creeping' stream, either by the stall-keeper or her customers.

Pope has added his mite to Fleet Ditch satire and history, in the 'Dunciad:'—

'This labour past, by Bridewell all descend
(As morning prayer and flagellation end)
To where Fleet Ditch with disemboguing streams
Rolls its large tribute of dead dogs to Thames:
The king of dykes! than whom no sluice of mud
With deeper sable blots the silver flood.'

Swift, with his usual bold felicity in dealing with such subjects, has outdone all his brother poets in his 'City Shower:'—

'Now from all parts the swelling kennels flow,
And bear their trophies with them as they go;
Filth of all hues and odours seem to tell
What street they sailed from by their sight and smell.
They, as each torrent drives its rapid force,
From Smithfield to St Pulchre's shape their course,
And in huge confluence joined at Snowhill ridge,
Fall from the Conduit prone to Holborn Bridge;
Sweepings from butchers' stalls . . .
Drowned puppies, stinking sprats, all drenched in mud,
Dead cats and turnip-tops, come tumbling down the flood.'

This nuisance was checked in 1734, by the Mayor and Corporation, who caused the Ditch to be arched over, from Holborn Bridge to Fleet Street. In 1765, when Blackfriars Bridge and Bridge Street were being built, another portion, from Fleet Street to the Thames, was arched over; and other portions have been arched or covered in at different times. The two old bridges which formerly spanned the Ditch at Holborn and Fleet Street, at the junction with Ludgate, are built into and form part of the present great sewer. Its length, within the City, is now about three-quarters of a mile, but it extends for miles beyond the City boundary, and drains an area of four thousand two hundred and twenty acres. Some few houses, at different parts of its course, still hang over the black, uncovered stream, like those old, traditional, bygone dens of Field Lane, which have been the source of a thousand stories in the romance of crime. Jonathan Wild, Jack Sheppard, and other similar criminals, are said to have haunted this spot; and along with accounts of fat boars, City refuse, and coarse heroic couplets, we have many traditions of robbery and murder. Some of the houses overhanging the Fleet Ditch in the last century had trap-doors opening over the stream, through which many unsuspecting victims are said to have been thrust, as well as many heaps of muck and ashes. A small and dirty street, called Chick Lane, West Smithfield, was destroyed in 1844, when the memorable 'Red Lion Tavern,' in West Street, as the place was then called, was

taken down. The house overlooked the open descent of the Fleet from Clerkenwell to Farringdon Street, and had long been infamous. It had many trap-doors, sliding panels, and cellars and passages for thieves; and a plank thrown across the sewer was often the means, it was said, of effecting an escape. A great crowd gathered round the place day after day, for several days, I being, on one occasion, amongst the number, and many stories were told and believed of murders and robberies hidden by the black flood below. The Fleet certainly rushed down to the river, in times of flood, and bodies picked up floating backwards and forwards with the tide, would, no doubt, have been taken ashore to be owned; and, if not owned, would have been buried by the parish with a Bow Street record of 'found drowned.' So far the machinery seems to have been well adapted for the commission of such crimes, and we may therefore allow that a certain small per-centage of the existing stories are possibly founded upon fact.

It is a relief to turn from these black or unsavoury records of one of the oldest and largest of the Northern main sewers, to stories such as are told of the less famous Effra. This great southern sewer was once a small river, which, rising in the Norwood hills, flowed down in a winding course to Kennington, and then wound through South Lambeth to the Thames, near where Vauxhall Bridge now stands. 'Forty years ago,' says a contemporary writer, 'nightingales in great numbers made their home in the sequestered portions of the Effra's banks, and flocks of larks might have been seen sweeping over Rush Common. The river was then wider than at present, with a current racing along faster than a man could walk. Although its channel was very deep, a day or two of heavy rain invariably caused an overflow, which laid South Lambeth, Kennington, and the lower portions of Brixton, under water.'

The abbots of Merton had lands given them for the especial purpose of repairing the bridge over the Effra, at the point where Kennington Church now stands; and Brixton was once a happy hunting-ground, well stocked with game, where Queen Elizabeth used to disport herself, during her visits to Lord Norris. A local tradition exists that the strong-minded queen once came up the river Effra in her barge to visit Sir Walter Raleigh, at old Raleigh House, which still stands on the hill. Looking at the partly open, partly closed black stream, which is now known as the 'Wash,' or Effra main sewer, and thinking of the frilled fulness which characterized the Elizabethan style of dress, it is difficult to believe that the former

could have ever been broad enough to admit the latter. There, however, is the tradition, firmly rooted, like many other traditions, in the popular faith, and pictures are called up of gilded barges, the sweeping of light guitars, potato-custards, tobacco pastiles, and the chivalry that makes door-mats of velvet cloaks.

CHAPTER III.

HISTORY.

MOST of the old water-courses can come forward with like stories of what they were in their younger days, when they were honoured as rivers, and not degraded into dark underground sewers. It must not, however, be inferred from this that our sewerage system, our drainage plans, and our sanitary theories are things of yesterday, based upon nothing but the well-advertised civilization of the last twenty years. As early as the year 1290, the monks of Whitefriars complained to Parliament about the nuisance of the Fleet Brook. Their case was, that putrid exhalations of the thick stream overcame the frankincense burnt at the altar during the hours of divine service. At a Parliament held in 1307, Henry Lacy, Earl of Lincoln, also complained, 'that whereas in times past the river Fleet had been of such depth and breadth, that ten or twelve ships with merchandise were wont to come to Fleet-bridge, and some of them to Old Borne-bridge, now, the same course, by the filth of the tanners, and such others, and by the raising of wharfs, is stopped up.' The stream was frequently cleansed; and in the year 1502, the whole course of the Fleet Dyke, as it was then called, was scoured down to the Thames.

The municipal organization for sanitary purposes which we now have in the Metropolitan Board of Works and the sewer Committees or District Boards of the different London parishes, is the steady growth of five or six centuries. Every step in its progress may be clearly traced; from the signature of the Great Charter by King John, to the recent Act of 1855 for the better local management of the metropolis.

The aim of the earliest legislation was to preserve the uninterrupted flow of the natural water-courses, to remove existing obstruc-

tions, and to prevent their future growth; these objects are specifically provided for in the great charter—the first bill of sewers. This law was generally put in force by a petition to the crown, setting forth the grievance complained of. If the petition was entertained, some well-informed persons were selected, and entrusted with a commission empowering them to inspect the complaint and enforce the law against the offenders. The first commission of this kind on record, granted within the present metropolitan area, is one for Surrey and Kent, in the year 1295, some eighty years after the signature of the Great Charter.

These commissions, having no better rule than the local customs of each separate area of jurisdiction, soon felt the want of a more defined principle of action. Accordingly, Henry the Third, on occasion of a complaint from the occupiers of Romney Marsh, sent down a very eminent judge, Henry de Bathe, who, after due examination of the most intelligent and able witnesses, drew up from their evidence a code, known as the Laws and Customs of Romney Marsh, in the County of Kent. They were revised and increased by successive judges, extended to all other marshes, especially those on the *Thames*, by Edward the First, and are cited as the rule of law in most subsequent commissions. These ordinances provide for a general survey and admeasurement of the whole marsh, and the banks * to be repaired; for the election of twenty-four jurats by the commonalty, who should apportion the duties and costs to each tenant, as well as of a bailiff, who should give him notice of his liabilities, execute the work in his default, and levy double the *cost* thereof upon his property.

The advantages of a steady and regular administration over the fitful action of bodies assembled for a temporary purpose, could not fail to be soon perceived; accordingly, Parliament, in the 6th of Henry the Sixth, A.D. 1427, considering the great damage caused by inundations in divers parts, and likely to ensue, ordained that the chancellor shall issue commissions of sewers during the next ten years, the form of which, though rather briefer, does not differ in any essential material from those issued down to the present day, and

* Although no records of the construction of the Thames embankments are accessible, those works are unquestionably of very ancient date; and, viewed as productions of engineering energy, are of a magnitude and extent which entitle them to be considered as the most remarkable, as they are certainly the most ancient, of any similar works in the kingdom. There is every reason to believe that they were constructed at a period contemporaneous with the Roman occupation of Britain.—*Report on Metropolitan Drainage.*

especially directs the members to make necessary ordinances according to the Laws and Customs of Romney Marsh, thus giving the Crown-appointed commissions a Parliamentary sanction. Two years later, another Act of Parliament enabled the commissioners not only to make ordinances, but to execute them. In 1472, the nuisance of weirs and impediments continuing, a short Act recapitulated and confirmed former Acts for their removal, and enforced penalties on offenders.

The next step in sewer legislation was taken during the reign of Henry the Eighth, in the year 1531, in an Act commonly known as the Bill of Sewers.

This Act has served as the basis of later legislation, and was the only *general* statute till the passing of the Metropolitan Sewers Act of September 4, 1848. It recites the need of commissions of sewers, the form of commission, the oath and qualifications of its members, assigns them wages, empowers them to survey walls, streams, ditches, banks, gutters, sewers, bridges, mills, dams, ponds, locks, flood-gates, weirs, and other impediments, and to correct, repair, or amend them; to inquire by oaths of a jury where such annoyances are, and by whose default; to punish offenders, assess the persons contributing to the charge, to appoint and pay keepers, bailiffs, surveyors, collectors, expenditors, and other officers, to distrain for arrears, to impress men, carts, horses, oxen, and implements, to take materials at their own valuation, to make ordinances, to hear and determine all causes arising out of or under the Act, to issue writs and precepts to sheriffs and bailiffs, and to compel others to obey their orders. Each commission was to last three years, and the Act to endure for twenty—but it was renewed and made perpetual in 1548—during the reign of Edward the Sixth.

During the reign of Elizabeth, in the year 1570, Parliament extended the commissions to ten years, gave their ordinances force after their expiration; and in the 3rd of James the First (the king who went into partnership with Sir Hugh Myddleton to supply London with water), extended their jurisdiction to all walls, ditches, banks, gutters, sewers, bridges, and water-courses, within two miles of the City, which fall into the Thames.

After the passing of this Act, commissions were issued to the separate metropolitan districts; to Westminster in 1659, Holborn and Finsbury in 1683, and the Tower Hamlets in 1686. Some doubts having arisen as to their jurisdiction over new sewers, a clause was introduced into a general paving Act within the bills of mortality in the year 1690, during the reign of William and Mary, enacting that

all new sewers since the 12th of Charles the Second should be, to all intents and purposes, subject to the commissions. Another Act, passed in the reign of Queen Anne, gives them the same authority over copyholds which was before possessed over freeholds, and also empowers them to issue distress warrants.

From this time no general law increasing the powers of the commissioners appears to have been passed, although several local Acts were obtained to amend and enlarge those conferred by the statute of Henry the Eighth. In Westminster and the Tower Hamlets the commissioners were not considered to have power to build new sewers, while in the City of London, Holborn and Finsbury, Surrey and Kent, they were considered to have full power for that purpose. All the Acts were very defective for minor drainage. The earlier statutes did not in any way contemplate house drainage; and most of the local Acts prohibited its discharge into the sewers, and enforced the construction of cesspools. In 1810 there must have been two hundred thousand cesspools in London; but in that year their increase was checked, in consequence of many mechanical improvements in connection with an enlarged water supply. It was not, however, until 1830 that their abolition was very marked. As some mitigation of the evil arising from those Acts, overflow-drains from the cesspools were permitted; but in the greater number of cases, and in all the poorer parts of the metropolis, cesspools without overflows were the rule, and covered drains the exception.

The attention of Drs Arnott, Kay, and Southwood Smith was forcibly drawn to the evils resulting from this state of things, when they were the medical officers employed by the Poor Law Commissioners in 1838. The House of Lords took the first step in the matter in 1839, by petitioning the crown for an inquiry and report to be made upon the physical causes of sickness and mortality, to which the poor are peculiarly exposed. The Poor Law Commissioners made a report; a commission to inquire into the state of large towns and populous districts was issued in 1843, and the Public Health Act was the result. The case of the metropolis had so many features peculiarly its own, that it was considered desirable to obtain further information before making it the subject of a new enactment, and accordingly, in 1848, the Metropolitan Sanitary Commission was issued, which reported at great length on the condition and defects in its administration. The practical result was to supersede all the separate commissions—Westminster, Holborn and Finsbury, Tower Hamlets, Poplar Marsh, Surrey and Kent, and Green-

wich—and to consolidate them by issuing new commissions to the same individuals for all these separate jurisdictions. These commissions became fused into one by the Metropolitan Sewers Act of 1848—an important measure, that did not make any alteration in the principle of the law, but considerably extended the powers and authority of the commissioners, who were, however, still Crown-appointed. The area of jurisdiction was extended to a circle of twelve miles' radius from St Paul's, excluding the square mile or thereabouts, contained in the City proper; all doubts as to the legal right to construct sewers were removed, all sewers were vested in the commissioners, and full power was given them over all private drainage. Their authority to make rates was defined and extended, and in place of the old troublesome qualification of a rate-payer, as one who received benefit or avoided damage, the principle was established of levying the rate over a certain definite area or district.

It is not necessary here to go into the history of the different Metropolitan Commissions of Sewers since 1848, until the creation of the Metropolitan Board of Works in 1855. The commissioners were often men of high scientific eminence, business talent, and well-earned popularity. They endeavoured to grapple with the great London drainage question, by inviting plans from competent engineers; and they were opposed by a plan brought before Parliament by Mr Morewood in the years 1845 to 1853, which proposed to deal with the sewage by means of a public company, sharing profits with the rate-payers. The bill for this plan was lost; but in the different discussions and examinations of witnesses, the public were much enlightened on the subject of London drainage. So much opposition was shown to entrusting new sewer works of great magnitude and cost, for which the public would have to pay, to a limited Crown-appointed commission, that Government, yielding to the expression of the general sentiment, infused a new element by the nomination to the new board of one local representative for each of the metropolitan boroughs. In 1855, the bill for the better local management of the metropolis became law, and under its provisions, that sifted upper parish parliament, known as the Metropolitan Board of Works, came into existence. After six hundred and forty years of legislation, practice, and experience, the management of underground London and something more was handed over to a purely representative assembly. The changes effected by the Metropolitan Sewers Bill have already been adverted to; but much more extended powers are

conferred by the Metropolis Local Management Act and its amendments.

The amount of rates leviable under the Sewers Act, has been successively one shilling, threepence, and sixpence in the pound; it is now *unlimited*. The rental of houses within the limits governed by the Metropolitan Board of Works, being the amount on which the rates are assessed, is now about fifteen million pounds per annum. The purposes for which such rates might be levied were confined to drainage only. The new Acts comprise paving, cleansing, lighting, and improvements, the many details of street management, and the important duty of supervising all constructions formerly controlled by the Building Act. These powers above and below ground are exercised by a corporation entirely parochial in its origin, which numbers forty-six members. These members are picked vestrymen, sent by their respective parishes to sit at the Metropolitan Board of Works; and as the vestries are elected by the rate-payers, the root of the sewer corporation is, or ought to be, representative. The City sends three members (in addition to having its own 'Honourable Commissioners of Sewers'), the parishes of St Marylebone, St Pancras, Lambeth, St George, Hanover Square, St Mary, Islington, and St Leonard, Shoreditch, send two each; a group of seventeen other metropolitan parishes, from Paddington to Woolwich, and from Camberwell to Hampstead, send one member each; and fourteen districts, including some fifty-five small or outlying parishes, send fourteen members more. No member can hold office, without re-election, more than three years, and once a year one-third of the members retire by lot. The chairman is chosen by a majority of his fellow-members, and may be turned out of office, at any time, by two-thirds of a special meeting convened to consider his appointment. His salary is fifteen hundred pounds a-year, but none of the members are paid, and he is assisted by a paid staff, chosen in a similar manner, consisting of secretary, engineers, solicitor, clerks, and messengers.

The Board came into its trust property when it started in business, and this property consists chiefly of the main sewers of the metropolis. These are now all marked, described, and mapped out, with their numerous small tributaries, like valuable beds of coal; and it is to the preservation, enlargement, and improvement of these necessary veins of society that the energies of the Board are mostly directed. While the members labour, however, in a useful way, underground, they attend to ornamental work on the earth above. When the proprietor

of a dwelling-house wishes to run out a Grecian portico—like a four-post bedstead—on to the pathway, the Board often objects to it as an obstruction; and as they are incorporated with power to sue and be sued (a fearful power!) their objection sometimes means mischief. They may alter the names of public thoroughfares, so that the staunch Whig who fancies he was settled for life in 'Fox Place,' may wake up one morning and find himself in 'Pitt's Buildings.' In checking the street obstructions, caused by opening the roadway for laying down gas-pipes, water-pipes, telegraphic wires, and even railways, they have a voice, and they are often exhorted to use it.

CHAPTER IV.

OLD CHANNELS.

GOD bless the man who invented red-tape, and those who use it with judgment and discretion.

With all its admitted faults of architecture and street arrangement, London has the most elaborate system of underground sewerage of any city in the world. The work has been done piecemeal, at different times, and under the disadvantage, as we have just shown, of many separate commissions, rather than of one permanent board. The records of its construction are vague, scattered, and imperfect; and no amount of industry can dig up any pages of close, historical detail, such as would have been kept, as a matter of course, in a more despotic French bureau. Exception must be made to the records of the sewers in the City proper, and to some few of the parochial records; but the perfection of these is the result of individual care and industry, rather than of any recognized system. Vast tunnels of brick and pipe have been laid down in a rugged, representative way, and paid for by the rate-payers with the most wonderful uninquiring faith. Bills to the extent of millions sterling have been sent in to the public, met without the slightest hesitation, and without any suspicion that the few gulley-holes at the street-sides may be only show traps put forward for the sake of appearances. The spade and the trowel have not been idle, especially during the present century; but pen and ink have not followed close upon their footsteps. There has been a manifest stinginess in employing those recording angels—the humble clerks; and the consequence is, that the books of the

sewer commissioners are very much like the accounts of a clumsy bankrupt. The trading certificates of these functionaries must be suspended for a few years longer, although there is no imputation on their honesty. Red-tape may be objectionable when it interferes with the commencement of any work; but when the labour is completed, or even within certain limits during its progress, red-tape is the life-blood of order and history.

The extent of underground London is, of course, very much modified by the extent of what in precise documents is called the metropolitan area. This area is always taken as being cut into north and south by the river Thames, and is divided into certain districts. On the north or Middlesex side of the Thames there are the western districts of Kensington, Chelsea, St George's, Hanover Square, Westminster, St Martin-in-the-Fields, and St James's, Westminster; the northern districts of Marylebone, Hampstead, Pancras, Islington, and Hackney; the central districts of St Giles's, Strand, Holborn, Clerkenwell, St Luke's, East London, West London, and the City of London; and the eastern districts of Shoreditch, Bethnal Green, Whitechapel, St George's-in-the-East, Stepney, and Poplar. On the south or Surrey and Kent side of the Thames there are the districts of St Saviour, Southwark; St Olave, Southwark; Bermondsey, St George's, Southwark; Newington, Lambeth, Wandsworth, Camberwell, Rotherhithe, Greenwich, Lewisham, and Woolwich.

These districts cover an area of one hundred and seventeen square miles, and according to the census of 1861, are filled with a gross metropolitan population of 2,803,034, spread amongst 362,890 inhabited houses. They are contained within that portion of the valley of the Thames which may be considered to commence where the high land approaches the river at Brentford on the north side, and at Richmond on the south side. The range of hills which bounds the valley on the north passes between Hanwell and Ealing, and then, turning eastward to Hampstead and Highgate, divides the valley of the Thames from that of the Brent. From Highgate the range continues in an easterly direction, separating the London basin from the tributaries of the river Lea, and is terminated abruptly at Stamford Hill, by the valley of the Lea.

On the southern side the range of hills which bounds the main valley may be considered to pass from Richmond, by Wimbledon Park to Tooting; then southward, by Streatham, Norwood, the Crystal Palace, Sydenham, and Forest Hill, to Deptford; and to be terminated by the high land which passes south of Greenwich, and which abuts

on the river at Woolwich. This main range of hills, however, is divided by three subsidiary valleys. On the east side of Richmond Park it is divided by the valley of the Bavely brook; between Wimbledon Park and Tooting it is again divided by the valley of the river Wandle; and again the valley of the river Ravensbourne, at Deptford, separates the main range from the high land which lies at the back of Greenwich and Woolwich.

The metropolitan district terminates in the marshes a little below Woolwich.

When considered with reference to drainage, the main valley of the Thames may be said to contain two distinct natural divisions—the upland districts, and the lowland or marshy districts. The upland districts are divided into a series of valleys, generally at right angles to the main valley of the Thames, or nearly so; and in each of these valleys is the bed of a stream,—one of the old water-courses,—which served to convey the natural drainage of the district towards the river.

The lowland or marsh districts, on the other hand, present generally uniform surfaces, seldom much above, and usually several feet below the level of high-water. These districts appear to have been originally formed by enclosing the mud banks which skirted the river, the enclosed land being drained by ditches, with scarcely any inclination. The outfalls of these ditches are below the level of high water, and, therefore, the water they contain can only be discharged when the tide is low.

Through large portions of the metropolitan area these marsh districts lie between the upland districts and the river, and, consequently, the streams which convey the drainage of the upland districts discharge into the drains of the marsh districts, in which the water naturally remains stagnant for a portion of every tide.

When houses were first built over the metropolitan area, the streams and ditches retained their original functions as channels to convey away the rain-fall from the fields, roads, and roofs of the houses; water for domestic purposes, as we have before said, was not so largely used as it is at present, and the house drainage was collected in cesspools. 'It was not,' says Mr Cunningham, 'until after the great fire of London that water was conveyed down the side of the houses by leaden pipes. The drainage of the roof was ejected into the streets by clumsy spouts, just as griffins' mouths continue to convey the water from our cathedral leads, and men who cared for their

clothes were watchful to keep the wall, and would push and fight for it with great pertinacity. The nuisances of a house, as late as the reign of Charles the Second, were placed in the street before the door, and the scavengers who removed the filth gave notice of their presence by knocking a wooden clapper. The sewage of a house was received into a well; and when the well was full the contents were pumped into the kennels of the street.'

The first sewer in Chancery Lane was made by the Lord Keeper Guildford, in the reign of Charles the Second. That the Thames in those days was not considered to be without stain and without reproach, is proved by the following plan of a Mr Wheeler (the proposed results of which are to be found in the Patent Office) for putting London, by land and water, thoroughly in order. In 1653 Mr Wheeler sets forth a list of some works that he offers to undertake. He takes away the common loathsome discommodities of highways, and makes the most of them, the great roades within a mile or two of London, like pleasant promenades and walks of recreation, in all kinds of weather; from want whereof most great and faire cities may be deservedly called foule and unwholesome jakes and dunghills.

He undertakes to make the cittie of London a very faire, sweete, and pleasant cittie, within a week's time, so cleane within that one may walk in slippers in all weathers, except snow, in the foulest streets thereof, and can settle in a way whereby it may be preserved with lesse than half an hour's labour a day; so that houses scarce kept sufficiently clean with two servants, may by his discretion be put into condition with one; to the great preservation of clothes and shoeleather; the charge of scavengers shall be much lessened; the dirt shall be converted to other uses, and that water which foules the said river shall cleanse the land upon all occasions, and the water preserved in repositories or cisterns; to run of themselves whithersoever the necessity of quenching fires calls them; and the confusion and waste of breaking up streets, opening water-pipes, shall wholly cease.

Hogarth's striking picture of a London night shows that manners had not much improved in the days of George the Second. It was not until 1849, according to Mr Haywood, in his report upon the ventilation of sewers, that an organic change in our sewage system really took place. In 1848 the City Commission of Sewers obtained its Act for sanitary purposes, which became operative upon the 1st of

January of the following year. Then for the first time was a miscellaneous discharge into the sewers legalized; previously a penalty might have been enforced for such an usage of them.

This important change in the law, in the habits of the people since 1810, and in the system of drainage by which the house drains were compulsorily connected with the sewers, necessarily rendered the streams and ditches extremely offensive, and created the necessity of covering them over. The construction of sewers in the metropolis was also the means of abstracting and diverting large quantities of spring water flowing in the various strata through which the sewers passed. The absorption of water in all the sandy districts, and the loss of the celebrated springs at Bayswater, from which, in ancient times, water was conveyed to the city of London by leaden conduit-pipes in the direction of Oxford Street and Holborn, and some of which springs, in the early part of the present century, formed the source of supply of the Stone Pipe, or Spring Waterworks, a company whose interest was purchased by the proprietors of the Grand Junction Waterworks, at the beginning of their career, are remarkable instances of the diminution of underground streams as the sewers have been extended through the metropolis.

When the Metropolitan Board of Works came into its property on the 1st of January, 1856, an inventory, in the form of a schedule to the Act of Parliament, set forth the titles and routes of the different main sewers of underground London handed over to the new corporation. There were fifty, including branches, on the north side, and twenty-one, including branches, on the south side; making a total of seventy-one, without counting the numerous alien branches, which many of them gathered in in their course. These seventy-one underground channels thus became 'main sewers' by Act of Parliament; 'a classification,' says Mr Haywood, 'purely arbitrary, and made apparently upon no principle whatever.' They all discharge into the Thames direct, with the exception of a few that reach that receptacle for all sewage by such round-about channels as Hammersmith Creek, Deptford Creek, and the river Lea. These are not the only chief arteries of communication with the poor old Thames; and the following list will probably show the whole number, as near as we can ascertain:—

OUTLETS AND SLUICES ENTERING THE THAMES WITHIN THE METROPOLITAN AREA.

	North Side.	South Side.
From the River Lea to somewhere about the Thames Tunnel ..	20	25
„ the Tunnel to London Bridge	15	6
„ London Bridge to Blackfriars	23	6
„ Blackfriars to Westminster	36	3
„ Westminster to Vauxhall	4	2
„ Vauxhall to Battersea	15	4
„ Battersea to Fulham	5	3
North Side 118		
South Side 49		
Total 167		

We must add eight more outlets to this account for the sewers which run into the Thames on the north side within the city of London, and one hundred and seventy-five private outlets which exist within the same limits.

The main sewers handed over, in trust, to the Metropolitan Board of Works have an estimated length of one hundred and sixty-five miles; and the velocity of their currents varies from one to three miles an hour. The most important of them discharge, at periods of the day, in dry weather, from one thousand to two thousand cubic feet of sewage per minute, the greatest height being generally maintained during the hours of nine in the morning and five in the afternoon. At other periods of the day the same sewers rarely discharge more than one-fourth of this quantity. The following is a list of all these main sewers, with their respective lengths, now published for the first time, and dedicated to all the rate-payers of the great metropolis. The intelligent rate-payer will, perhaps, be kind enough to consider that we are unrolling a panorama of underground London, beginning at Hammersmith Creek and winding round on the north side of the Thames until we come to the river Lea. On the south side we begin about half a mile above Putney town, and wind round by the river through Surrey and Kent, until we arrive at Deptford Creek. No length of sewer on the south side is said to be more than fifty years old.

chargeable for the cost according to benefit, object to such local impost; and the Board have postponed these improvements until they shall be entitled to charge the cost of these works generally over the whole metropolis.'

The old open Hackney Brook sewer, he tells us in the same report, is now no more, its lower end having been replaced by the northern high-level intercepting sewer, which we shall touch upon in another chapter. The old Hackney Brook had become a sad nuisance in its old age, but in its youth it was a clear river, and was connected with the glories of the Roman occupation of Britain. It would be easy to get melancholy in musing over these records, and to fancy the time when the Rhine may be converted into a sluggish German sewer, or the Mississippi into a lively but offensive American ditch.

The length of the various channels running into these great tunnel main arteries, and completing the sewerage network of underground London, may be roughly estimated (including the main sewers) at sixteen hundred miles. Some of these channels are 'private sewers,' that neither central nor district Boards consider themselves bound to repair, maintain, and father; some are old, diseased, decayed channels, known amongst the workmen as 'dead' sewers; some are winding, egg-shaped channels, under the control of vestry sewers' committees; and most of them are broad, arched channels, pouring black Niagara streams into the dark, Thames-seeking flood.

CHAPTER V.

A DAY BELOW.

BLUE-BOOKS on sewers, like most blue-books, are very solid, instructive volumes, not half as much appreciated as they deserve to be, and too often made the easy butt of mechanical, uninquiring ridicule. Able, friendly sewer engineers and obliging secretaries are always crammed to overflowing with special information, and are always ready to be tapped to enlighten the public. Reports, pamphlets, letters, hints; cyclopædias that are learned upon cloacæ in general, and enthusiastic about the Roman Cloaca Maxima in particular, with a dozen other similar documents and publications, are not to be despised; but in dealing with underground London as if determined to know something about it,

there is nothing like a long, sloppy, muddy, 'mud-larky' survey. The Great Charter itself, as we have before stated, provided for a survey, and King John's barons are generally considered to have known what they were about.

Feeling a desire to inspect a main sewer almost from its source to its point of discharge into the Thames, I applied to the proper authorities, and was obligingly told that they had not the slightest objection to gratify what they evidently thought a very singular taste. I was even asked to name my sewer. They had blood-sewers (a delicate article) running underneath meat-markets, like Newport Market, where you could wade in the vital fluid of sheep and oxen; they had boiling sewers, which were largely used by sugar-bakeries, where the steam forced its way through the gratings in the roadway, like the vapour from the hot springs in Iceland, and where the sewer-cleansers get something very like a Turkish bath at the expense of the rate-payers. They had sewers of various orders of construction; egg-shaped, barrel-shaped, arched, and almost square; and they had sewers of different degrees of repulsiveness, such as those where manufacturing chemists and soap and candle-makers most do congregate. They had open rural sewers that were fruitful in watercresses; and closed town sewers whose roofs are thickly clustered with what our scientific friends call 'edible fungi.' The choice was so varied that it was a long time before I could make up my mind, and I decided, at last, upon exploring the King's Scholars' Pond Sewer, which commences in the Finchley Road and ends in the Thames a little above Vauxhall Bridge.

If the literary executors of the late Mr Leigh Hunt had not cut the ground from under me in the title of a book just published, I might possibly have called this chapter A Saunter through the West End. We have all our different ways of looking at London. The late Mr Crofton Croker had his way, as he has shown in his 'Walk from London to Fulham,' and I have got mine. The man who starts, like I do, by regarding the Thames only as one vast cesspool, and by looking upon human beings only from the cubic feet per head of sewage point of view, must often take the arms of a few sewer-flushers in a friendly way, and keep up his dignity by thinking of Magna Charta.

Sewer-cleansers are a class of workmen who seldom come prominently before the public, perhaps because their labour is chiefly underground. They have never made any particular noise in the world, although they receive in London every year about five-and-twenty thousand pounds sterling of the public money. Their wages, individu-

ally, average about a pound a week. They have never distinguished themselves by producing any remarkable 'self-made men;' any Lord Chancellors, or even Lord Mayors; and have never attempted, as a class, to 'raise themselves in the social scale.' They are good, honest, hard-working, every-day labourers, who often meet extreme danger in the shape of foul gases, and sometimes die at their posts, as we saw the other day in the Fleet Lane sewer.

Some half-dozen of these men, with a foreman of flushers, attended upon me on the day I selected for my underground survey. They were not lean, yellow men, with bent backs produced by much stooping, and hollow coughs produced by breathing much foul air. Their appearance was decidedly robust, and as I measured bulk with one or two of them I had no reason to be proud of my supposed superior training.

There seems to be only one costume for underground or underwater work, and the armour necessary for sewer-inspecting will do for lobster-catching on the coast, or for descending in a sea diving-bell. The thick worsted stockings coming up to the waist, the heavy long greased boots of the 'seven league' character, the loose blue shirt, and the fan-tailed hat, may be very hot and stifling to wear, but no sewer-inspector is considered properly fortified without them.

As I have before remarked, there is a fatal fascination about sewers, and whenever a trap-door side entrance is opened, a crowd is sure to gather about the spot. The entrance to the King's Scholars' Pond Main Sewer, that I decided to go down by, is close to the cab-stand at St John's Wood Chapel, and twenty cabmen were so much interested in seeing me descend with my guides, that the offer of a fare by any passer-by would have been resented as an annoying interruption. My guides were not at all clear as to my motives for taking this underground 'saunter through the West End,' and the cabmen were even more hazy on this point than the guides.

'Rather him than me; eh, Bill?' said one.

'That licks cab-drivin',' said another, in reply.

The side entrance is a square brick-built shaft, having a few iron rings driven into two of its sides. These rings form the steps by which you ascend and descend, putting your foot on one as you seize hold of another. I felt like a bear in a pit at the Zoological Gardens, as I descended in this fashion; and I dare say many respectable members of parochial sewers committees have gone through the same labour, and have experienced the same feeling. Before the iron trap-door over us was closed by the two men left to follow our course

above ground, I caught a glimpse of a butcher's boy looking down the shaft, with his mouth wide open. When the daylight was shut out, a closed lantern was put in my hand; I was led stooping along a short yellow-bricked passage, and down a few steps, as if going into a wine-cellar, until I found myself standing knee-deep in the flowing sewer.

The tunnel here is about six feet high, and four feet broad; growing gradually larger, except near the canal in the Park Road, as it descends in a winding course towards the Thames. All main sewers may be described roughly as funnel-shaped; the narrow end being at the source in the hills; the broad end being in the valley, where it discharges into the river. The sizes of these underground tunnels, at different points of their course, are constructed so that they may convey the waters flowing through them with no prospect of floods and consequent bursting, and yet with no unnecessary waste of tunnelling. Here it is that the science of hydraulic engineering is required.

Turning our face towards the Thames we waded for some time, in a stooping posture, through the sewer, three of my guides going on first with lanterns, and two following me. We passed through an iron tube, about three feet high and two feet broad, which conveys the sewage over the Regent's Canal, through the crown of the bridge. It was not until we got into some lower levels, towards Baker Street, that the sewer became sufficiently large to allow us to stand upright.

Before we had arrived at this point I had experienced a new sensation. I had had an opportunity of inspecting the earthenware pipe drainage—I am bound to say, the very defective pipe drainage—of a house that once owned me as a landlord. I felt as if the power had been granted me of opening a trap-door in my chest, to look upon the long-hidden machinery of my mysterious body.

When we got into a loftier and broader part of the tunnel, my chief guide offered me his arm, an assistance I was glad to accept, because the downward flood pressed rather heavily against the back of my legs, and the bottom was ragged and uncertain. I could not deny myself the pleasure of calling this chief guide Agrippa, because Agrippa is a Roman name, and the Romans have earned an immortality in connection with sewers. Whatever doubts the sceptical school of historians may succeed in throwing upon the legends of Roman history, they cannot shake the foundations of the Roman sewers. Roman London means a small town, bounded on the East by

Walbrook, and on the West by the Fleet. You cannot touch upon sewers without coming upon traces of the Romans; you cannot touch upon the Romans without meeting with traces of sewers. The most devoted disciple of Niebuhr must be dumb before such facts as these, and must admit that these ancient people were great scavengers, if they were not great heroes.

Agrippa took a real pleasure in pointing out to me the different drains, private sewers, and district sewers, that at intervals of a few yards opened into our channel through the walls on either side.

'We've nothin' to do with the gover'ment of any of these,' he said; 'they are looked after, or had ought to be looked after, by the paroch'al boards.'

'You look after branches?' I replied.

'Only when they're branches of prop'ly construed main sewers. We,' he continued, and he spoke like a chairman, 'are the Metropolitan Board of Works, and we should have enough to do, if we looked after every drain-pipe in London.'

'What's the length of those drain-pipes all over London,' I asked, 'leaving out the sewers?'

'No one knows,' he said. 'They do tell me somewhere about four thousand miles, and I should say they were all that.'

We went tottering on a little further, with the carriages rumbling on the roadway over our heads. The splashing of the water before and behind us, as it was washed from side to side by our heavy boots, and those of our guides, added to the noise; and when our above-ground followers let the trap-door of some side entrance fall, a loud booming sound went through the tunnel as if a cannon had been fired. The yellow lights of the lanterns danced before us in front, and when we caught a glimpse of the water we were wading in above our knees, we saw that it was as black as ink. The smell was not at all offensive, and Agrippa told me that no man, during his experience in the London sewers, had ever complained of feeling faint while he moved about or worked in the flood; the danger was found to lie in standing still. For all this assurance of perfect comfort and safety, however, my guides kept pretty close to me; and I found out afterwards that they were thus numerous and attentive because the 'amateur' sewer inspector was considered likely to drop.

'There,' said Agrippa, pointing to a hole at the side, down which a lot of road sand had been washed, 'that's a gully-trap. People get a notion that heavy rains pour down the gutters and flush the sewers;

for my part, I think they bring quite as much rubbish as they clear away.'

At different parts of our course we passed through the blue rays of light, like moonlight, that came down from the ventilator gratings in the highway above. Under one of these we heard a boy whistling in the road, and I felt like Baron Trenck escaping from prison. Some of these gratings over our heads were stopped up with road rubbish, and Agrippa, who carried a steel gauging-rod, like a sword, in his hand, pierced the earth above us, and let in the outer light and air.

'They're nice things,' he said, alluding to the ventilating gratings, generally set in the top of a shaft-hole cut in the crown of the arch 'I remember the time when we'd none of those improvements; no side entrances, no nothing. When we wanted to get down to cleanse or look at a sewer, we had to dig a hole in the roadway, and sometimes the men used to get down and up the gully holes to save trouble.'

'You must have had many accidents in those days.'

'Hundreds, sir, were suffocated or killed by the gas; but since Mr Roe* brought about these improvements, and made the sewers curve instead of running zigzag, we've been pretty safe.'

The 'gas' alluded to by Agrippa is carburetted hydrogen, sulphuretted hydrogen, and carbonic acid gas. The first is highly inflammable, easily explodes, and has frequently caused serious accidents. The second is the gaseous product of putrid decomposition; it is slightly inflammable, and its inhalation, when it is strong, will cause sudden death. The third is the choke-damp of mines and sewers, and its inhalation will cause a man to drop as if shot dead. These are the unseen enemies which Agrippa and his fellows have constantly to contend against, more or less.

As we staggered further down the stream, it was evident that Agrippa had his favourites amongst the district sewers. Some he considered to be 'pretty' sewers; others he looked upon as choked, winding channels, not fit to send a rat up to cleanse, much less a Christian man. Looking up some of these narrow openings with their abrupt turns, low roofs, and pitch-black darkness, it certainly did seem as if sewer-cleansing must be a fearful trade. The sewer rats, so much talked of aboveground, were not to be seen; and their existence in most of the main sewers is a tradition handed down from the last century. They only abound in what are called the 'blood-

* The late Mr Roe, for many years surveyor to the Holborn and Finsbury Commissioners of Sewers.

sewers,'—those under slaughter-houses and meat-markets; but the proportion of animal matter which they consume is probably not more than one-twentieth of that which finds its way down such channels. Though the surveyors try in every way to prevent the offal from slaughter-houses going into the sewers, it is nevertheless often thrown in, and the channels become obstructed in consequence. Hair often clogs up those sewers which are deficient in fall, and proves one of the most serious obstructions with which sewer-cleansers have to deal. Since the improved supply of water, however, which gives to every dweller in London, man, woman, and child, a daily allowance of thirty gallons per head, the rats and the hair have been largely washed away by the increased flood.

Although underground, we passed over the Metropolitan Railway in the New Road, and then along the line of Baker Street, under Oxford Street, and through Berkeley Square. This aristocratic neighbourhood was loudly announced to us by our aboveground followers down an open 'man-hole;' but there was nothing in the construction of our main sewer, or in the quality of our black flood, to tell us that we were so near the abodes of the blest. Looking up the 'man-hole,' an opening in the road, not unlike the inside of a tile-kiln chimney, down which some workmen had brought a flushing-gate, I saw another butcher's boy gazing down upon us with his mouth wide open.

The flushing-gate was an iron structure, the exact width of the sewer, and about half its height. These gates are fixed on hinges at the sides of all the main sewers, at certain distances from each other; and when they are closed by machinery, they dam up the stream, producing an artificial fall of water, and so scouring the bed of the sewer.

As we got lower down our great underground channel, the roof became higher and higher, and the sides broader and broader; but the flooring, I am sorry to say, became more jagged and uneven. The lower bricks had been washed out, leaving great holes, down which one or other of my legs kept slipping, at the hazard of my balance and my bones. We peeped up an old red-bricked, long-disused branch-sewer, under some part of Mayfair, that was almost blocked up to the roof with mountains of black, dry, earthy deposit. Not even here did we see any traces of rats, although the sewer was above the level of the water in our main channel. The King's Scholars' Pond, so Agrippa told me, has had five feet of water in it, at this point, during storms; but this was not its condition then, or

we should hardly have been found wading in it. The bricks in this old Mayfair sewer were as rotten as gingerbread; you could have scooped them out with a teaspoon.

In Piccadilly we went up the side entrance, just to get a mouthful of fresh air, and a glimpse of the Green Park, and then went down again to finish our journey. I hardly expect to be believed, but I must say that another butcher's boy was waiting with open mouth, watching every movement we made with intense interest.

We had not proceeded much further in our downward course, when Agrippa and the rest of the guides suddenly stopped short, and asked me where I supposed I was now? I thought the question quite unnecessary, as my position in the sewer was pretty evident.

'We don't mean where are you in the sewer,' said Agrippa, 'but what's above your head?'

'I give it up,' I replied.

'Well, Buckingham Palace,' was the answer.

Of course my loyalty was at once excited, and, taking off my fan-tailed cap, I led the way with the National Anthem, insisting that my guides should join in chorus. Who knows but what, through some untrapped drain, that rude but hearty underground melody found its way into some inner wainscoting of the palace, disturbing some dozing maid of honour with its mysterious sounds, and making her dream of Guy Fawkes and many other subterranean villains? Before I leave this deeply interesting part of the King's Scholars' Pond Sewer, I may as well say that I am fully alive to its importance as the theatre of a thrilling romance. That no writer of fiction may poach upon preserves which I have made my own, I will state exactly what kind of story I intend to write, as soon as I have got rid of a row of statistics that are beckoning to me in the distance. My hero will run away with one of the Royal Princesses down this sewer, having first hewn a passage up into the palace through its walls. The German Prince, who is always going to marry the Royal Princess, whether she likes him or not, will be murdered in mistake by a jealous sewer-flusher, the villain of the story; and the hero, having married the Princess at some bankside church, will live happily with her ever afterwards, as a superintendent of one of the outfall sewers. If this story should meet with the success I anticipate, I promise to raise some memorial tablet in the sewer under the palace, to mark my gratitude and the royalty of the channel. If any reader thinks the mechanical part of this story impossible, let me tell him that two

friends of mine once got into the vaults of the House of Commons through the sewers.

Soon after we left this spot, we came upon a punt that had been poled thus far up the stream to meet us, and carry us down to the Thames. I took my seat with Agrippa, while the other guides pushed at the sides and stern of the boat, and I thought this was a good time to put a few questions to the men about the treasures usually found in the sewers. The journey was wanting in that calmness, light, and freshness which generally belong to boat voyages, and while there was a good deal of Styx and Charon about it in imagination, there was a close unpleasant steam about it in reality. Still, for all this, it furnished an opportunity not to be thrown away, and I at once addressed Agrippa.

'Well,' he said, 'the most awful things we ever find in the sewers is dead children. We've found at least four of 'em at different times; one somewhere under Notting Hill; another somewhere under Mary'-bone; another at Paddington; and another at the Broadway, Westminster.'

'We once found a dead seal,' struck in one of the men pushing the boat.

'Ah,' continued Agrippa, 'so we did. That was in one of the Westminster sewers—the Horse-ferry Road outlet, I think, and they said it had been shot at Barnes or Mortlake, and had drifted down with the tide. We find musherooms in great quantities on the roof, and icicles as well growing amongst 'em.'

'Icicles!' I said; 'why, the sewers are warm in winter. How do you account for that?'

'I don't mean what *you* call icicles,' he replied. 'I mean those white greasy-looking things, like spikes of tallow.'

'Oh, stalactites,' I said.

'Yes,' he answered, 'that's the word. We sometimes find live cats and dogs that have got down untrapped drains after house-rats; but these animals, when we pick 'em up, are more often dead ones.'

'They once found a live hedgehog in Westminster,' said another of the men. 'I've heard tell on it, but I didn't see it.'

'Of course,' continued Agrippa, confidentially, 'a good deal may be found that we never hear of, but there's lots of little things picked up, and taken to the office. We've found lots of German silver and metal spoons; iron tobacco-boxes; nails, and pins; bones of various animals; bits of lead; boys' marbles, buttons, bits of silk, scrubbing-

brushes, empty purses; penny-pieces, and bad half-crowns, very likely thrown down the gullies on purpose.'

'We've found false teeth—whole sets at a time,' said one of the men, ''specially in some of the West-end shores.'

'Ah,' continued Agrippa, 'and corks; how about corks? I never see such a flood of corks, of all kinds and sizes, as sometimes pours out of this sewer into the Thames. Of course we find bits of soap, candle-ends, rags, seeds, dead rats and mice, and a lot of other rubbish. We enter these things in our books, now and then, but we're never asked to bring 'em afore the Board.'

'Do any thieves, or wanderers, get into the sewers,' I asked, 'and try to deprive you of these treasures?'

'Very few, now-a-days,' he replied. 'Some of 'em creep down the side entrances when the doors are unlocked, or get up some of the sewers on this side when the tide is low, under the idea that they're going to pick up no end of silver spoons. They soon find out their mistake; and then they take to stealing the iron traps off the drains.'

By this time our bark had floated out of the broad archway of the sewer—an arch as wide as any bridge-arch on the Regent's Canal, and we were anchored in that pea-soup-looking open creek that runs for some distance along the side of the Equitable Gas Works. The end of this creek, where it enters the Thames, is closed with tidal gates, which are watched by a kind of sewer lock-keeper, who lives in a cottage immediately over the sewer. He cultivates flowers and vegetables at the side of the channel, and his little dwelling is a model of cleanliness and tasteful arrangement. His health is good, and he seems satisfied with his peculiar position; for instead of reading pamphlets on sewers and sewage-poison in the intervals of business, he cultivates game-cocks, and stuffs dead animals in a very creditable manner. It is within the power of any sewer-doctor to drive this steady workman mad:

> He dwells amongst the untrodden ways
> Beside the spring of Dove:—
> A spring that very few can praise,
> And very few can love.

Let us hope that the sewer-doctors and their theories will never reach him.

CHAPTER VI.

A BUNCH OF LEGENDS.

MY friend Agrippa, with all his practical experience, anecdotes, and attentiveness, did not appear to me to be what is called 'exhaustive' on the subject of old sewers. His stories wanted the fine full flavour that only age can bring, and his experience was entirely confined to the north side of the river. While the underground channels of the sunny south remained sealed up, or unexplored, I could not have felt that I had done my duty to my employers—the public. I should have been haunted by a suspicion that I had left many stories and features buried in the old borough of Southwark and its surrounding districts, which would be as seasoning pepper to far more statistics than I think proper to offer. Going to the Guildhall Museum, and seeing a piece of wood, which was found in the neighbourhood of St George's Fields, in excavating the great Duffield sewer, and which was labelled as being part of one of the piles of King Canute's trench,* made in May, 1016, my curiosity about the southern sewers was naturally stimulated. While I gave those who hold the keys of Underground London to understand that I was not dissatisfied with the King's Scholars' Pond sewer, I plainly told them that my appetite for information on sewer subjects was not yet half gratified.

A friendly official statement, that no length of covered main sewer on the south side was more than fifty years old, failed to damp my ardour. The reports of Mr Gwilt and Mr I'Anson, technically interesting as they undoubtedly were, only told me that most of the old sewers were anciently mill-streams and monastic water-courses; and that the whole southern valley district is under high-water mark—in some places as much as five or six feet. I went into various old sewers on the south side, that, in consequence of their peculiar geological

* A trench is said to have been cut through the pariah of Lambeth by King Canute, for the purpose of conveying his fleet to the west side of London Bridge to attack the city by water. The editor of the last edition of 'Aubrey' says that some traces of it were visible in his time. From the increase of new buildings, no vestiges of it are now to be seen, and the conjectures about its course are very various. After all, it is at least as probable that any remains of a trench which might have been visible half a century ago were of that which was made in the year 1173, for the purpose of altering the course of the river, when London Bridge was rebuilt. The trench is said to have begun in the east, about Rotherhithe, and to have ended about Battersea.

position, can only be entered when the tide is low. In one I saw a barrow that had been washed down from some opening in the road at some higher point; and I heard of a bedstead that had been picked up in the flood not many months before. The theory was that it had been carried away by some heavy rain storm, from some yard or garden on the Surrey Hills, plunged into the sewers where they still form open ditches, and streamed down the tunnels towards the Thames. I was told of many dead children that had been picked up on this side of the river in the same manner, along with washing tubs, mops, water-butts, and trunks of trees. In one old sewer under the Blackfriars Road, not remarkable for its purity, or its freedom from chemical refuse, I saw a cluster of mushrooms on the roof that were almost as large as ordinary soup-tureens.

These further experiences failed to satisfy me, and I asked for more. I wished to see one of the oldest working hands on the sewer establishment; a hoary mudlark who had been seasoned by nearly half a century's training, and who might fairly be regarded as a hermit of the sewers. My ideal of such a man was that of a sewer-flusher, who, by long familiarity with little else than the black underground streams of London, had come to regard the whole universe as one vast pool of sewage. No man who would have felt astonished at seeing the English Channel bricked over by contractors, and turned into a main sewer; or would have thought it singular to live over an outfall flood of sewage as large as Niagara, would have come up to my ideal. With some little difficulty, an old workman was found, who was not surprised to hear that I had been down various sewers, and took a deep interest in them. Nothing appeared to him more natural than that people should like to go down sewers, and to talk about them for hours together.

Our interview began in a kind of underground cell, side-entrance, or bower, where a man is often put to watch the tide; but it was ended in a district engineer's office. The walls were covered with maps and plans; the tables had many specimen brick-bats upon them, all labelled and numbered; there were many pieces of pipe drain on the floor; many curious fossils on the mantel-shelf; and a row of champagne bottles filled with specimens of river sewage. There was method, business, and science in all this, but the degraded position of the champagne bottles struck me as approaching desecration.

'Them's not quite the things to squench your draft,' said my companion, the old sewer workman, alluding to the bottles.

'Not exactly,' I said; 'the man who could treat old wine bottles like that must have been a savage teetotaller.'

My companion, encouraged from time to time by my questions, began to unfold his fifty years' experiences. He was a stout, healthy-looking old man, with a face not unlike a large red potato. He was good-tempered, and proud of his special knowledge, but not presuming. In this he differed from one or two other workmen whom I had met, who seemed to wish me to understand that they, and they alone, knew all about the London sewerage system. His language was frequently rather misty, as the sample just given will show; but a very little grammar will go a long way in the sewers, and working men have something else to think of beyond aspirating the letter H.

'They was like warrens,' he said, alluding to the old south-side sewers, 'you never see such shores. Some on 'em was open; some was shut; an' some was covered over with wooden platforms, so's to make the gardings all the larger. Some o' the shores was made o' wood, spesh'ly about Roderide; an' at S'uth'ark the people used to dip their pails in 'em for water. They made holes in 'em, so's to get at the water when the tide was up, an' I've seen 'em dippin' often nigh Buckley and Puckins's.'

'Did you ever meet with any accident,' I asked, 'during the long time you have worked in the sewers?'

'Oh, yes,' he said; 'I've been knocked down a dozen times by the gas, spesh'ly nigh the dead ends o' shores, an' I've been burnt over an' over agen. When your light goes out you may know summat is wrong, but the less you stirs about the muck the better. I've carried a man as 'as bin knocked down, nigh a mile on my lines [loins] in the old days afore we could get to the man-hole. It's pretty stuff, too, the gas, if you can only lay on your back when it goes "whish," an' see it runnin' all a-fire along the crown o' the arch.'

'I dare say,' I said; 'but sewers are quite bad enough to walk in, without these illuminations.'

'Shores is all right,' he returned, rather pettishly, 'it's the people as uses 'em that don't know how to treat 'em. There's the naptcha-makers, an' those picklin' yards, where they soaks iron in some stuff to make it tough; they're nice places, they are, an' nice messes they makes the shores in at times. Then there's can'le an' soap-manyfact'-rers, which sends out a licker that strong that it will even decay i'on an' brickwork. Then there's gas-tar-manyfact'rers, agen. We're 'bliged to go to all o' these people afore we goes down the shore, an'

ask 'em to 'old 'ard. If we didn't do that, there'd be more on us killed than is.'

'I suppose,' I said, of course with a view of getting information, 'the sewers you go up are often very small?'

'Some is two-foot shores,' he replied, 'an' they're tighteners; others is three-foot barrels; an' others is larger.'

'Did you ever hear of any murder being committed in the sewers?' I asked, not being willing to give up the chance of a romantic story without a struggle.

'There was one open shore,' he said, 'that some o' the foremen used to call "old Grinacre," in the S'uth'ark districk, but that's bin covered over many years.'

'What about that?' I asked, eagerly.

'Well,' he said, 'it used to bother us a good deal. One mornin', when the tide was all right, we goes down to work, an' picks up a leg!'

'A human leg?' I asked.

'Yes,' he said, 'all that, an' not a wooden one neither. Another night, when the tide was all right agen, we goes down, an' we finds another leg!'

'Another human leg?' I asked, in astonishment.

'Ev'ry inch on it,' he returned; 'an' that ain't all. Another time we goes into the same shore, an' we finds a arm, an' another time we goes down, an' we finds another arm.'

It seemed very annoying to me that my companion was compelled to sneeze and cough at this point of his story for about the space of five minutes.

'What did you do?' I asked, excitedly.

'Oh,' he said, 'the foreman put 'em down in his book, an' they went afore the Board, an' it was a long time afore the Board could make anythin' of 'em. They sent a hinspector down, an' we found a few more legs—ah, an' even 'eads, to show 'im.'

'What *was* the solution of the mystery?' I said, getting impatient.

'Well,' he replied, 'the cat came out o' the bag, at last. It was body-snatchers an' med'cal studen's. When the gen'elmen at the hospital 'ad done cutting up the bodies, they gets rid o' the limbs by pitchin' 'em into the open shore.'

I was certainly disappointed at this tame conclusion to what I thought was going to prove a romantic story, and yet I persisted in

questioning my witness, in the hope of still meeting with some startling experiences.

'People *must* get down the sewers,' I said, 'by picking the locks of the side-entrances, even if they don't always come up at the low tide on this side of the river.'

'Oh, they get down fast enough, sometimes,' returned my companion, with a chuckle, 'faster than they're always able to get up. I once 'ad a dog that got shut in a shore for a week, an' how d'ye think we got 'im out?'

'I can't imagine,' I replied.

'Well,' he continued, 'two on us was agoin' along Roderide, one day, when I thought I 'eard a pen-an'-inkin'* sound comin' up a gully. My mate didn't seem to see it, acos not having lost a dog, he wasn't thinkin' of dogs; but I made up my mind that it was a hanimal down the shores, an' what's more, that it was Flusher.'

'Who's Flusher?' I asked.

'Why the dog,' he said, 'that's what we called his name. I goes to the nex' side entrance, an' almost afore I could get the trap open, up springs the very hanimal, an' falls senseless at my feet.'

'Was he dead?' I inquired.

'No,' he replied, triumphantly, 'not he; he'd taken pretty tidy care of himself down the shores; an' he was only a little drunk with the fresh air.'

'Talking about drunk,' he continued, 'we've 'ad one or two rum goes o' that kind in the shores. I remember once the side wall of a old main giv' way, an' the men found theirselves in a public-'ouse cellar. P'rhaps they 'adn't ought to've done nothink, but giv' the parties notis; but none on us, you know, is always perfec'. They took a little o' this, an' they took a little o' that, until I don't think they knew which was shore and which was cellar. Lucky for 'em one o' the foremen came down afore the tide got up, an' 'ad the wall all made right, or they'd bin washed away, like a shot, tubs an' all.'

'These were your regular men,' I said; 'but don't you remember any instances of strangers getting into trouble or danger down the sewers: like those men who went in the other day after the tallow from the Tooley Street fire?'

'Oh, yes,' he returned, 'many cases; but we never took much notice on 'em. Once I remember a case o' this kind, acos a fr'end o' mine was mixed up in it.'

'Let us have it, then,' I said.

* A curious phrase, which is held to mean the yelping of a dog.

'Well,' he began, 'a fr'end o' mine was smokin' his pipe one night at his garret-window, just as you might be, when he thought he 'eard a cough right agen his left ear. He starts up in a fright, an' looks roun', expectin' to see some one, but his missus 'ad gone out to get somethin' for supper, an' there wasn't nobody except 'imself in the room. Well, he goes back to the winder, an' looks out, to see if any neighbours was pokin' their fun at 'im, but he couldn't see no one right nor left. He sits down agen, an' begins smokin', when he hears a muffled voice say, "Where am I? The water's up to my neck; for Gawd's sake let me out!"

'When my fr'end 'eard this, he drops his pipe into the street, an' stan's for a minit struck all of a 'eap. He couldn't see no one, an' couldn't make out where the voice came from. While he was lookin' about, he 'eard the same voice say, as nigh as he could recollect, "Oh, dear me! Let me out, an' I'll never come down the shore agen."

'When my fr'end 'eard the word shore mentioned, somethin' struck 'im the voice came up the rain-pipe which went down the side o' the 'ouse into the main. The top o' this pipe was werry nigh my fr'en's winder, so he leans out, an' shouts down it, "Who are you? What's your game?"

'"Oh, sir," says the voice, "I'm Bill Stevens, of Num'er two, Mill-pond Court, Roderide. I didn't go to do it, an' I'm bein' washed away in the shore."

'It was a lucky job for Master Bill Stevens that my fr'end knew me, and knew where I lived at that time. He runs roun' to me at once, an' foun' me just goin' to turn into bed. I comes out with a key, an' goes down after my gen'elman, an' finds 'im arf dead wi' fright. There's no mistake about it: it ud a' bin over with 'im in another 'our, as the tide was comin' up fast. He'd stuck 'imself agen the side o' the shore, like a rat, 'olden on to the end o' the pipe, up which he shouted to my fr'end. We took 'im 'ome to his father, quite agen his grain; and the father says, "'Ang the shores; he's always down the shores; we can't keep 'im out o' the shores; I wish there wasn't no shores."

'"Well," I says, "you needn't go on about the shores. The best thing you can do, if the boy's 'ead runs that way, is to put 'im under a reg'lar flusher, an' let 'im larn the bus'ness."'

'Did the father take your advice?' I asked.

'He did,' replied my companion, regretfully, 'but some 'ow it didn't answer. The boy wouldn't go into the shores when they wanted 'im, an' now, I think, he's a bricklayer, or somethin' o' that sort.'

I soon found, after this, that I had completely exhausted my companion's stock of sewer anecdotes. I spoke to him about the great intercepting sewers now in progress, but the plan appeared to be a sealed book to him, and the discussion of it seemed to make his head ache. Thanking him, therefore, for the information he had given me, I turned my back, to some extent, upon the old works and the old workpeople, and proceeded to make an inspection of the new ones.

CHAPTER VII.

NEW CHANNELS.

THE British tax-payer is certainly an extraordinary creature. His paying power seems to be enormous, and his patience under financial milking is a lesson to noisy martyrs. He stands like a cow to give forth, and only exhibits the bull disposition when you tell him what has become of the milk. He has a fretful impatience of figures and statistical details, and can always be driven mad by a multiplication table. Some artful members of the small governing family have helped to nourish this disposition by making his figures as dry and repulsive as possible. This is one way of choking an efficient audit. Other artful members of the same governing family have persuaded him that details are only fit food for the parochial mind, and that the parochial mind is a very low, vulgar form of popular intelligence. He has listened to the voice of the charmer until he has come to consider everything of importance except what is under his nose or beneath his feet. He watches 'diplomatic complications' at German Peddlingburghs, takes note of what is doing for the people in the Maccaroni Islands, and is deeply interested in any contest beyond the Dunghill Mountains. The consequence is that when a parish voting paper is left at his door, he has either no time or taste to look at it, or else throws it in the fire, and leaves the administration of millions sterling largely in the hands of potboys.

It is fortunate, perhaps, for the cause of good sewer government that sewers are a part of the parochial system that will not be neglected. The naming of streets, the watering of roads, and the feeding of paupers may be done by anybody, or nobody, or not done at all; but the sewers, if not properly treated, have a power of making themselves felt which they are not slow to use. At certain periods, and in cer-

tain conditions, they are allowed by nature to become so offensive, that poor John Cow is disturbed over his foreign affairs journal, and is unable to tell whether the Grand-Duke of Meddlingbeggar, or of Idlebeggar has the largest standing army. At these moments he is compelled to put down the telescope with which he has been sweeping the distant horizon, and to think a little about pipe-drainage, inclinations, the district sewer at the back of his premises, and the main sewer in the thoroughfare round the corner. He becomes aware that his neighbour next door may have more power to embitter his existence than all the grand-dukes and diplomatic complications in the world.

The great intercepting scheme of London main drainage, which has been many years before the metropolitan public on paper, and some years under them in bricks and iron, must have originated from one neighbour grumbling at another. The London valley on both sides of the Thames, if it takes the trouble to look into its unfortunate geological position, has a splendid cause of quarrel with its neighbours, the upland districts. The sewerage system of the last fifty years has linked the whole metropolitan public together by vast underground chains, and has taught them that they are all suffering, enduring brothers. In this joint-stock company some few members have got the upper hand, and they lean very heavily on those below them. The central parts of London have to bear the gases generated by sewage from numerous surrounding neighbourhoods. A voice rises up in the City, with reason and indignation in its tones, and says, loudly, 'Here's a pretty state of things! In the days of cesspools, sir, every household had to bear only so much annoyance as it created for itself; but we have changed all that. How many towns and villages now, sir, send their filth through the City, which, under the old cesspool system, had to keep it for their own farms and gardens? Sixty-nine separate populations, sir, numbering half a million of persons, send their refuse past our doors, as regularly as omnibuses run from Paddington to the Bank. Day and night, sir, we breathe an atmosphere tainted by these swollen underground streams, and have not even the poor satisfaction of sending some unbearable nuisance back. The country, sir, had need give us a few zephyrs, laden with odours of new hay and wild thyme, as a set-off against this bouquet of the thousand sewers.'

Representations such as these, accompanied by the still small voice of parochial conscience, the enterprise and invention of engineers, and the ambition of legislative meddlers and social reformers, naturally

produced a variety of sewerage schemes—before alluded to—which ended in the great intercepting project at present being carried out. The late Mr Frank Foster, aided by Mr Haywood, began this plan upon paper in 1849; Messrs Bazalgette and Haywood modified, extended, and continued it, still upon paper, in 1854; the Metropolitan Board of Works, when it commenced its career, on the 1st of January, 1856, took it into consideration; Mr Bazalgette remodelled the plan in 1856; a Government commission—before quoted—reported for and against Mr Bazalgette's scheme, and for and against many other things, in 1857; Messrs Bazalgette, Hawksley, and Bidder—also before quoted—again reported for and against the Government report; and, finally, Mr Bazalgette, as engineer-in-chief to the sewer parliament, began to carry out his thrice-remodelled project of 1858.

Mr Bazalgette's plan is to put something like a few sewer-girdles round London, though not exactly in the space of forty minutes. His best labours, and those of his able lieutenants, Messrs Lovick, Grant, and Cooper, are doomed to be hidden from the public eye, and to dwell in perpetual darkness. Three vast tunnels on the north side of the Thames, extending from west to east, and two vast tunnels on the south side, also extending from west to east, with several branches, will cut through the various Thames-seeking main sewers, at different levels, intercepting the daily millions of gallons of sewage, and carrying them away to the river at a point between Barking Creek and the Plumstead Marshes. These new main tunnels, some of which will help to drain the districts they pass through, will be at least seventy-one miles long; and will cost, with sewage-filtering reservoirs, pumping stations, engines, etc., at least three millions sterling. About five-and-twenty miles of these tunnels are now completed, and the contractors and their workmen are going on rapidly with the lengths left to be constructed. There are not wanting opponents to state that the whole structure is a costly mistake, and that a few years will open the eyes of the deluded rate-payers. Anything that opens the eyes of these apathetic tax-payers may be regarded as of some value; and as we are inclined to take the existing five-and-twenty miles of intercepting tunnel as a great accomplished fact, we may, perhaps, be pardoned for giving a few details about the work and its position.

On the north side of the river Thames, the high-level sewer, or girdle, begins at Hampstead with a tunnel four feet in diameter, and extends, increasing here and there in size, until it reaches something like eleven feet square at the point where it joins the river Lea at Old

Ford. Its course may be roughly described as passing over the Highgate Road, across the fields into and down the Holloway Road, under the Great Northern Railway and New River Cut to Stoke Newington, and then through Hackney and the Victoria Park to its aqueduct across the river Lea. It has just been completed, a round-about tunnel nine miles long, and swallowing up in its course that open part of the Hackney Brook which may have been a river in the time of the Romans, but which was decidedly a stinking ditch sewer in the days of Victoria. About half a million cubic yards of earth have been dug out to form the channel of this high-level sewer; it has sucked up forty millions of bricks, two hundred thousand bushels of Portland cement, three hundred and fifty thousand bushels of lime, one hundred thousand cubic yards of concrete, seventeen tons of hoop-iron, and has employed fifteen hundred men from week to week. During the time of its construction we have had the wettest summer and the coldest winter upon modern record, and bricks have advanced in price at least fifty per cent.

With the exception of the large branch, or 'storm overflow' tunnel, which has been constructed across Hyde Park and Kensington Gardens, to relieve the great Ranelagh sewer from floods, and give it another outlet into the Thames, these are the only new works on the north side that may be put down as no longer existing merely upon paper.* The Ranelagh sewer runs in the bed of the Westbourne, an ancient rivulet that flowed through Knightsbridge, and one of the numerous streams which came down from the Hampstead hills to the Thames. Its name is derived from its being the most westerly of those streams running through or by London. Rising at West-end Hampstead, and winding towards Bayswater, it passed through it, behind St James's Church; here it crossed the Uxbridge Road, and entering Kensington Gardens, it passed through them and Hyde Park, where it ran along the centre of the Serpentine, into which it entered. By the addition of several ponds, it was widened in 1731. Leaving the Park, it crossed the Great Western Road at Albert Gate, thence it passed in an oblique line behind the east side of William Street and Lowndes Square, behind Lowndes Street and Chesham Street, and, bending to the right, passed under Grosvenor Bridge, where it divided itself, and flowed by two channels into the Thames. The eastern course of this lost river was stopped up when the Grosvenor Canal was formed, but the mouth may still be distinctly traced at the back of Westmoreland Street. The western mouth is now the

* This was written in June, 1861.

entrance to the Ranelagh sewer, to which the stream has for many years degenerated. By an under-current, formed in 1834, its course was diverted at Bayswater, to prevent drainage passing into the Serpentine; and when the 'Five Fields' at Pimlico were intended to be built upon, a new sewer, for which Smeaton had previously made surveys, was constructed. The whole of its course is now covered in, although part of it was open in 1854.

The Westbourne, as a brook, was occasionally a source of annoyance to the inhabitants of Knightsbridge. After heavy rains it overflowed; and on September 1st, 1768, it caused great damage, almost undermining some of the neighbouring houses. In January, 1809, it overflowed again, and covered the neighbouring fields so deeply, that they bore the appearance of a lake, and passengers were for several days rowed from Chelsea to Westminster by Thames boatmen.

The great middle level sewer has certainly been begun at both ends, viz., at the Old Ford part of the river Lea and at Bayswater; but as it will have to pass through crowded thoroughfares, the contractors, Messrs Brassey, are waiting until they are prepared to carry on the work with the utmost expedition. It will have three branches, called the Piccadilly, Dover Street, and Coppice Row branches. The main line begins in an egg-shaped tunnel, about four feet in height, and is to increase in size, here and there, until it ends in a circular tunnel, ten feet and a half in diameter. Its course will be from Paddington to Notting Hill, along Oxford Street, through Bloomsbury and Clerkenwell, along Old Street—one of the finest old Roman roads in London—across Shoreditch, through Bethnal Green, still keeping very much to the line of the old Roman road, and under the Regent's Canal, to Old Ford, where it will run for some little distance side by side with the high-level sewer. It has been estimated that about half a million cubic yards of earth will have to be dug out for this channel, and that it will suck up about fifty-five thousand cubic yards of concrete, and forty millions of bricks. The workmen employed in it will be at least a thousand.

You could ride for miles on horseback up either of these tunnels —the high-level and the middle-level sewers—going in at the lower end, where they run together for some distance under a raised clay and concrete embankment. In case of floods, they are provided with what are called 'overflow chambers,' a kind of gigantic letter-box, open at the top, built up at the sides, or in the centre of the sewers, where they join their channels together. These hollow chambers reach to within a few feet of the roof, and if the black underground

stream rises above their edges, it will pour down them, as through a funnel, into two lower channels, thence into the river Lea, and by that stream into the Thames above Blackwall.

At Old Ford, where these two sewers run together, traditions and traces of the Romans may be found in any quantity. The workmen have picked up decayed skulls, broken pieces of huge pottery, pock-marked, singular-looking iron instruments, fossil shells, and some early English and Roman coins. If these relics were really planted to be dug up by the men, and sold to the contractors or the public, as a recent trial about like relics found at a like spot would seem to show, it is almost a pity that any one should ever expose the deception. The relics are quite old and crumbled enough to make any ordinary contractor happy, or to attain an honoured position under the glass-cases of a museum. The coins are undoubted pieces of ancient money, and their presence in the stream is accounted for by the pleasing tradition that they were dropped by careless Roman passengers out of a Roman punt, at the time when Old Ford was a Roman ferry.

The northern outfall sewer, which is only just begun, is another part of the great intercepting scheme, existing only, at present, upon paper. It is intended as a channel to convey the combined stream of sewage from the river Lea to its reservoir and outfall in the Thames at Barking Creek. This outfall sewer will be about five miles long, and will consist for about one mile of two lines of tunnel enclosed in a raised embankment, and for the remaining distance of four miles of three lines of tunnel, each nine feet in diameter. It will cross over seven streams, including the river Lea; it will pass under the Eastern Counties Railway, and over the North Woolwich and Tilbury and Southend lines in aqueducts. It is estimated that about one million one hundred and twenty-four thousand cubic yards of peat and soft ground will have to be cut out and piled up to form the embankment; that six hundred and twenty-nine thousand cubic yards of concrete will be required for the same purpose; that the tunnels will suck up about twenty-seven thousand rods of reduced brickwork, one hundred and twenty millions of bricks, one million six hundred and fifty thousand bushels of cement, three millions eight hundred and thirty-four thousand bushels of lime, and four thousand tons of wrought and cast-iron for the bridges over the streams and railways. The natural drainage of the marshes will, of course, be carried under the embankment in culverts.

This great outfall sewer, which will empty itself into a covered

reservoir at Barking Creek, capable of containing seven millions of cubic feet of sewage, will not only receive the combined streams poured into it by the high-level and low-level sewers just described, but another vast flood that will probably be pumped into it from another line of projected main intercepting tunnel, called the low-level sewer. This sewer depends so much upon the project of a Thames embankment, which has been for some time under the consideration of Parliament, that Mr Bazalgette has wisely given up reporting about it until the great river terrace scheme shall be decided upon one way or the other. Its course, as laid down upon paper, is to hug the bank of the river from Chelsea, through Westminster, the Strand, Cannon Street, Eastcheap, Tower Hill, Stepney, and Limehouse, to the river Lea, where it will join the other intercepting sewers. It will take in five branches; from Brentford, Fulham, Victoria Street, Westminster, the Isle of Dogs, and Hackney Marsh in its course; and as its level will be about thirty-seven feet below the high-level and middle-level sewers, its stream will have to be pumped by engine-power into the great outfall channel.

The great intercepting sewers on the south side of the river Thames are divided into a high-level tunnel and a low-level tunnel, with an outfall underground channel.

The high-level tunnel begins at Clapham Common, and winds its way through Stockwell and Camberwell to Peckham, where it is joined by a long fork or branch, called the Effra branch—an improved substitute for the open Effra ditch—which comes down from Dulwich. The two tunnels then continue from Peckham through New Cross, until they end in Deptford Creek, where they are provided with storm overflow chambers, very similar to those in the north-side sewers. The whole length of this high-level sewer is between nine and ten miles, and rather more than one half, at different points of its course, is just completed. It begins, like most of the others, as a circular tunnel about four feet in diameter, and increases here and there in size until it ends in a diameter at least ten feet and a half. When finished, it will cut off and divert the upland waters which now flood the low and tide-locked districts. It is estimated that this intercepting sewer will suck up eighty-two thousand cubic yards of brickwork, thirty millions of bricks, two hundred thousand bushels of cement, four hundred thousand bushels of lime, seventy-five thousand cubic yards of concrete, and will require more than half a million cubic yards of ground to be cut out, and nearly the same quantity of earth and materials to be carted.

The low-level intercepting sewer is mapped out to run from Putney through Battersea, Brixton, Camberwell, the Old Kent Road, and across the market-gardens to Deptford. It will be provided with a couple of storm overflow branches, running into the Thames at Vauxhall and Deptford, and a north or Bermondsey branch, which will intercept many sewers running through that district. At present it can only be said to exist upon paper, although the contractors have begun the works at Deptford, where they found the undersoil to be a running sand, filled with an extraordinary volume of water. As this end of the low-level sewer will be at least twenty feet below the end of the high-level sewer, pumping power will be required, as on the north side, to raise the stream up into the great outfall tunnel.

The great southern outfall sewer, which may be regarded as a work second only in extent and importance to the northern outfall sewer, is more than half completed. It will pass from the Deptford pumping station through Greenwich and Woolwich under the Erith marshes to a covered reservoir capable of containing four millions of cubic feet of sewage, on the river bank at Crossness Point, beyond Plumstead.

The length of this main tunnel will be about seven and a half miles, and its diameter about eleven and a half feet. Its depth from the surface in many parts is very great, especially about Woolwich, where the rough entrance-shafts are like the mouths of huge mines with ladders going down at different inclinations. Here the tunnel has been constructed for some distance, mole-like, under the ground, most probably without a large portion of the inhabitants being aware of its existence or progress. It is estimated that about half a million cubic yards of ground will have to be dug out for this channel, and that about the same quantity of earth and materials will have to be carted. It will suck up one hundred thousand cubic yards of brick-work, thirty-seven millions of bricks, and six hundred thousand bushels of cement; and when completed with the other works, it will receive and carry off the whole of the drainage of that portion of London which is on the south side of the Thames. These southern works, from their commencement to the present time, have given weekly employment to upwards of two thousand men.

The sewage reservoirs on the north side at Barking Creek, and on the south side at Plumstead Marshes, will be raised some twenty-one feet above the level of the outfall sewers, and the stream will be pumped into them. The final discharge of the fluid sewage at high water—the solid sewage being deposited in the reservoirs—will take

place through covered channels buried under water, and communicating with the centre and bottom of the river Thames. The works have been calculated so as to admit of extensions as the metropolitan population expands, and to carry off the sewage of three millions and a half of people, with the rainflow always oozing from the district they must necessarily occupy. The drainage area may be stated roughly as one hundred and fifty square miles; and the whole of the works, according to the original promise, are to be completed in 1863.

The two main principles at the bottom of this great plan, are to relieve certain low districts from the nuisances inflicted on them by certain high districts, and to save the Thames within the metropolitan boundary, even if the outskirts persist in defiling it, from being made the great cesspool of London. The London water companies, some by Act of Parliament and others by choice, no longer make this London cesspool their feeding cistern, but have gone higher up the stream for their supply of water, while the sewer-lords are preparing to take the sewage lower down the channel. This seems to be a sensible divorce. The new system of drainage represents the struggle of art against nature; and if it prove successful, the almanacks will no longer be able to register the dates of high sewage at London Bridge. The fastidious moon—that emblem of purity—will no longer be disgusted by looking down upon a flood of something like pea-soup, and by knowing that its tidal influence is only washing backwards and forwards a stream which in decency ought to be covered over as a main-drain sewer.

The sewerage scheme now being rapidly carried out is so vast, that it has naturally driven many people almost mad who have grappled with it and opposed it. Some people cannot be brought to believe that any tunnels have been constructed anywhere, and they look upon the thick-ribbed shore-cuttings, the houses on wheels, and the excavators' spades and lanterns, scattered about in different parts of London, as mere surface decoys, set up to satisfy a few inquisitive rate-payers. Others regard the tunnels as only too real and substantial; volcanoes of filth; gorged veins of putridity; ready to explode at any moment in a whirlwind of foul gas, and poison all those whom they fail to smother. Others take the financial ground that the scheme will exhaust three millions sterling, without doing three-pennyworth of good; forgetting that the tunnels will always be worth their money as wine-cellars, bowling alleys, skittle-grounds, flower-beds of romance, and fancy sub-ways. If sewage should prove as obstinate as certain sewer-doctors predict, the tunnels may even serve

as condemned cells for all our unruly, colony-rejected thieves and convicts.

CHAPTER VIII.

OLD CRUSTED LONDON.

THE London sewers have been fruitful in furnishing antiquarian and geological discoveries. In March, 1849, during excavations in Smithfield for a new sewer, and at a depth of three feet below the surface, immediately opposite to the entrance of the church of St Bartholomew the Great, the workmen laid open a mass of unhewn stones, blackened as if by fire, and covered with ashes and human bones charred and partially consumed. 'This,' says Mr Cunningham, 'I believe to have been the spot generally used for the Smithfield burnings; the face of the sufferer being turned to the east and to the great gate of St Bartholomew, the prior of which was generally present on such occasions. Many bones were carried away as relics.'

When the new sewers were being constructed in the Strand in 1802, eastward of St Clement's Church, the workmen discovered an ancient stone bridge of one arch, about eleven feet in length. It was covered several feet in depth with rubbish and soil, and found to be of great strength. Mr Malcolm, who records the discovery in his 'Londinium Redivivum,' says that a doubt arose whether it was the 'Bridge of the New Temple,' passed by the Lords and others who attended Parliament at Westminster, after going out of the City to this place by water, which Edward the Third once called upon the Knights Templar to repair, or an arch turned over a gully or ditch, when the road, now the street termed the Strand, was a continued stream of filth.

Mr C. Roach Smith says, 'Some excavations made for sewers in Thames Street led to discoveries which confirm the truth of Fitz-Stephen's assertion, that London was formerly walled on the water-side; and although, in his time, the wall was no longer standing, at least in an entire state, there was probably enough left to trace its course by. This wall was first noticed at the foot of Lambeth Hill, forming an angle with Thames Street, and extending, with occasional breaks, to Queenhithe; and some walling of a similar character, probably a part of the above, has been noticed in Thames Street, opposite

Queen Street. It was from eight to ten feet thick and about eight deep, reckoning the top at nine feet from the present level, and composed of ragstone and flint, with alternate layers of red and yellow, plain and curved tiles, cemented by mortar, as firm and hard as the tiles, from which it could not be separated. For the foundation strong oaken piles were used, upon which was laid a stratum of chalk and stones, and then a course of hewn sand-stones, from three to four feet long, by two and a half in width.'

The old works have done this, and more, for archæology; and the new works have not been backward in helping geology. The following interesting paper, read by Charles Rickman, Esq., at the Geologists' Association, in the early part of the present year, shows what discoveries were made at Dulwich and Peckham, during the Excavations of the Effra branch of the Great Southern High-level Sewer:—

'The autumn of 1859,' he says, 'witnessed the commencement of the main drainage of the south of the Thames, when my attention was directed to the open cuttings at Peckham. In the spring of 1860, the more difficult operation of tunnelling under the Five Fields at Dulwich, afforded practical lessons both to the engineer and the geologist. It was in the latter capacity I first became acquainted with the sections thus exposed, and having devoted every available leisure hour on these works (from October, 1859, to July, 1860), I venture to lay before the Geologists' Association a brief narrative of my discoveries during the progress of the excavations, consisting of an open cutting running from Peckham Rye to New Cross, and the tunnel at Dulwich. Now, there can be no doubt that the strata passed through constitutes a portion of the Lower London Tertiaries, distinguished by Mr Prestwich as the "Woolwich and Reading Series," and I have it as that gentleman's opinion, that the six feet of clay on the top of the main shaft at Dulwich may belong to the London clay; and I must confess, that when I first visited the scene of operations at Peckham, I was so impressed with the analogy the different sands and clays bore to the familiar Woolwich series, both in their lithological and palæontological characteristics—as visible at Charlton and Blackheath—that I despaired of finding any additional fossil remains indicative of an extended fauna or flora; but a short acquaintance speedily led me to a very different conclusion. And here it is expedient I should explain that it was upon a huge spoil bank, near the Nunhead Cemetery, that I had so ample an opportunity of studying the organic remains, which was scarcely possible in the cuttings, on account of immense quantities of water, and the speed with which the sewer was constructed, and the

opening filled up. Amongst this *debris* were masses of indurated clay, oftentimes of a highly crystalline character, making hydraulic cement, when burnt, equal to that manufactured from the nodules of septaria, so plentiful in the clays of the London basin and at Barton, presenting conchoidal fracture when broken contrary to the plane of stratification. It occurred about seventeen feet from the surface, having a uniform thickness of eight inches, and charged with myriads of casts of the well known fresh-water genus *Paludinæ;* it rested on an oyster-bed, made up of the remains of *Ostrea Tenera* (Sowerby), *Ostrea pulchra* (Sowerby), *Ostrea Bellovacina* (Lamark), *Ostrea elephantopus* (Sowerby), a *Bysso-arca*—considered by Mr Edwards to resemble *Arca-Cailliaudi* (Bellardi), from the nummulitic beds of Nice, *Cyrena cuneiformis* (Fér.), *Cyrena deperdita* (Sowerby), *Cyrena cordata* (Morris), *Melania inquinata* (Def.), *Melanopsis brevis* (Sowerby), *Modiola Mitchelli* (Morris), *Calyptræa trochiformis* (Zam.), and *Corbula;* all (with the exception of *Arca-Calliaudi*) being well known and characteristic fossils of the Woolwich and Reading series.

'I propose to distinguish the layer of indurated clay by the name of the *Paludina* band; in addition to the smaller species, the well known *Paludina lenta* (Brand), I also met with three specimens resembling the *Paludina aspera* (Michaud), from the fresh-water limestones of Rilley la Montague, which may probably be the species recorded by M. De la Condamine as *Paludina Desnoyersi* (of Deshayes); that species, however, appears to be more globose than the specimen from Peckham. In Sowerby's "Mineral Conchology," plate 50, fig. 1, is figured a specimen from East Peckham, to which the name of *Paludina elongata* is affixed; it would be interesting to ascertain if either of the specimens on the table is referable to this species. Associated with the *paludinæ* were casts of a *unio*, resembling, if not identical, with *Unio Solandri*, and another undescribed species of *unio* of large size. These blocks separated easily in the centre, exposing surface-planes of comminuted shells, with here and there fish-bones, teeth, and scales, the latter resembling those of *Lepidotus minor*. Some blocks yielded very beautiful specimens of leaves, my most perfect specimen being now in the British Museum. I have failed, myself, to discover any insect remains of a definite character; but the researches of Mr Evans clearly demonstrate their presence. A figure and description appear in the "Geologist Magazine," for January, 1861.

'Again, when fractured contrary to the plane of stratification, the surfaces thus exposed were often darkened with distinct semi-ovate

patches, which I have ventured to conclude may be the *opercula* of the *paludinæ*. Lastly, with regard to this *Paludina band* at Peckham, I must not omit to mention the discovery of specimens of a spiral shell, generally casts or much eroded, occurring at rare intervals amongst the *paludinæ*, which, from its apparent resemblance, was at first referred to the genus *Voluta*, and was supposed to resemble the well known Bognor fossil, *Voluta denudata* (Sowerby).

'These specimens were submitted to the attention of many friends and conchologists, and, despite the seeming anomaly of a marine shell occurring in juxtaposition with an undoubted fluviatile genus requiring some slight amount of speculation to account for its presence, still it was gradually settling down as *Voluta denudata*, when an unexpected and fortuitous circumstance enabled me to clear up the mystery; for the spring of 1860 had now arrived, and with it the tunnelling operations were in full activity at Dulwich—the principal shaft had been sunk on an eminence in the Five Fields, at the spot where the trial-borings had been made. These latter gave the several thicknesses of clay, sand, and gravel, approximating in accuracy to the working-section, with the exception that in the trial-section no mention is made of the shell-conglomerate. It became necessary to sink the shaft a depth of sixty-five feet, and then galleries were driven right and left, when, from the quantity of water, it was requisite to further sink what is technically called a sump, in order to drain the galleries. This sump collected the water, so that buckets descending whilst the skips filled with *debris* ascended, became filled with water, and in their turn reached the surface, and were emptied into troughs or shoots, the whole put in motion by a horse-gin; this was probably the simplest and most inexpensive machinery that could be used for such operations, of a purely temporary character. It was in the excavation of this sump that masses of the shell-conglomerate were first met with, imbedded in sandy clay, the natural section presenting a fractured condition, commented on even by the workmen, who referred it to the action of a whirlpool. It was at this time, one or two lengths of the galleries having been excavated, and prior to the brickwork being put in, that I was invited to descend the shaft. I did so, and was much struck with the singular appearance of the several strata, consisting of intercalated bands of dark black clay, greenish sand, and hard shelly rock, all running off into thin wedges, gradually thickening east and west. To the eastward, the circular gallery was ten feet in diameter, passing through the tenacious black clay, some tons of which were lying near the mouth of the shaft on the occasion of my

first visit. This clay was laminated, and in breaking up exposed very beautiful specimens of various kinds of leaves. These were not mere impressions, but the carbonized substance of the leaf still remained; and, as I have described elsewhere, 'it was possible in many cases to lift the leaf from the clay;' and I perfectly remember on some days, when the wind was rough, choice specimens which I had exposed to dry were blown away. Oftentimes the leaves formed a thin blackish carpet over many square feet of clay. I had no difficulty in collecting some hundreds of these leaves. The choicest specimens may now be seen in the British Museum and the Museum of Practical Geology. The most peculiar in form, occurring very rarely, was accurately figured in the 'Illustrated London News,' of March 24th, 1860, by Mr S. J. Mackie, F.G.S.

'I will not assume to offer any opinion as to the botanical character of this flora. Leaves were plentiful which have a close analogy to the poplar, the willow, and the maple, now growing in the neighbourhood; but it would be difficult to find (except in the Tropical Department of the Crystal Palace, hard by) any congener of those magnificent lanceolate leaves, with serrated edges, which here and there darkened the surface of the clay.

'Lignite was very abundant, highly charged with iron pyrites. Very rarely I met with an obscure kind of seed-case, and what may either be the catkin of the willow, maple, or hazel, and one or two specimens of petro-phyloides.

'In driving the galleries east and west, it was soon discovered that the shell-conglomerate became regularly bedded, and ultimately attained a maximum thickness of four feet. It was sometimes intercalated with bands of stiff blue clay, presenting in section a series of wedges, and even some of the hardest masses contained cavities filled with soft clay. It had a dip east and west of the central shaft, which appears to mark the axis of elevation. Two more shafts were sunk to the eastward and one to the westward, presenting a general resemblance to that just described. The galleries, when united, formed the entire length (three hundred and thirty yards) of the tunnel, which was constructed of a circular seven-feet-barrel brick drain, set in concrete with Portland cement. The difficulty of the operations was much increased by the immense quantity of water occurring in the running sand.

'Simultaneously with the main shaft, the first one to the eastward was sunk; and here, early in the spring of 1860, I succeeded in laying open a large block of stiff blue-black clay, having exposed on its

surfaces many leaves and three pairs of shells, which at once struck me as differing in form from any of the *cyrenæ* which I had previously met with.

'These were still covered with the epidermis; and it was also from amongst some broken specimens that Mr Edwards was enabled to work out the hinge, and determine that it was a new species of *cyrena*, which I have named and described as *Cyrena Dulwichiensis*. Its specific characters are, shell elongately oval, transverse, inequilateral, posteriorly slightly produced, and obscurely truncated; umbones prominent, tumid, curved; unule large, and of an oblong oval form. The anterior extremity presents on the surface numerous irregular and rather deep concentric furrows, which become shallower as they cross the middle, and almost obsolete over the posterior extremity. The shell is ornamented with irregular and longitudinal bands or rays of colour, usually eight or ten on each valve, but varying in number and breadth in different specimens. The shelly matter forming the coloured surface of these bands appears to have been particularly susceptible of disintegration, for most generally it was found to have been decomposed, leaving a perceptible furrow corresponding with the ray impressed on the surface. The hinge-lamina is much curved, and has three divergent cardinal teeth, of which the central one is slightly bifid, and two unequal compressed lamelliform lateral teeth, strongly serrated. Length, two inches and one-twelfth; height, one inch and five-twelfths.

'At this very time the main shaft was yielding many tons a day of the shell-conglomerate, and I soon discovered that my new-found *cyrena* of the clay-beds was also tolerably plentiful in the conglomerate more strongly exhibiting the colour-bands. Here it was associated with *C. cordata*, *C. deperdita*, *C. cuneiformis*, *Melania inquinata*, *Cerithium funatum* (Mantell), a large species of *unio*, and a smaller one, probably *Unio Solandri*, together with large masses of lignite pierced by a large and undetermined species of *Teredina*; also crocodile scutes, fish-scales (resembling *Lepidotus minor*), and chelonian and mammalian bones. For several weeks I was unable to make out any univalve, with the exception of *Melania* and *Melanopsis*, and in the clay *Rissoa*, although I felt satisfied that I had observed some obscure fragments not referable to either of the foregoing; but one fortunate day a harder and more homogeneous mass yielded a perfect specimen, followed the next day by the discovery of another. This pair of shells I submitted to the notice of the eminent palæontologist, Mr F. E. Edwards, who has described and figured this new genus under the

name of *Pitharella Rickmani*. For that gentleman's remarks on this shell, and his reasons for considering it referable to one of the three families *Auriculidæ*, *Achatinidæ*, or *Limneidæ*, I beg to refer you to the "Geologist" for June, No. 30, merely subjoining his description of the shell.

'"*Pitharella* (Generic Characters).—Shell subcylindrical; spire obtuse, more or less produced; aperture oval, oblong, rounded in front, narrowed behind; columella straight or very obliquely twisted, arched anteriorly; outer lip simple, inner lip thickened.

'"*Pitharella Rickmani* (Specific Characters).—Shell oval-oblong, smooth; spire sub-conical, short, varying in height in different specimens; whorls, five or six depressed on the posterior margin, and obtusely angulated on the shoulders. The sutural edge is slightly thickened, forming a narrow, upright, ribbon-like band pressed against the preceding whorl, and feebly crenulated by the lines of growth; in well-preserved specimens, the margin immediately in front of the sutural band presents two or three obscure concentric furrows. The last whorl is somewhat attenuated towards the base; the aperture is entire, rounded in front, narrow behind, and very long, nearly equalling four-fifths of the entire length of the shell; the columella is obscurely and very obliquely twisted, and anteriorly is much curved. The outer lip is slightly arched, simple, and sharp on the edge; the inner lip is posteriorly thickened and narrow, anteriorly effuse, flattened and reflexed, forming an angular ridge on the columella and confluent with the outer lip. The dimensions of Mr Edwards's largest specimen, if it were perfect, would be—axis, 2 inches and 2-12ths, nearly; diameter, 1 inch."

'By comparison, it was soon ascertained that the casts occurring in the *paludina* band at Peckham were identical with the Dulwich *pitharella*. This induced me to revisit the Peckham excavations; and I then found tolerably perfect specimens, with the shelly matter still remaining, although in a very decomposed state. This identity is apparent by reference to the specimens on the table; and thus the mysterious obscurity in which the first specimens were shrouded is satisfactorily cleared up, and the *voluta* enigma solved.'

'PECKHAM.	DULWICH.
Fish bones, scales, and teeth.	Mammalian, Chelonian, Crocodilian, } Bones.
Leaves (rare).	
Paludina lenta.	
„ Desnoyersi.	Leaves.
Ostrea tenera.	Fruit.

'PECKHAM.	DULWICH.
Ostrea pulchra.	Lignite.
„ Bellovacina.	Cyrena cuneiformis.
„ elephantopus.	„ deperdita.
„ edulina.	„ cordata.
Arca Cailliaudi.	„ obovata.
Cyrena cuneiformis.	„ Dulwichiensis.
„ deperdita.	Paludina lenta.
„ cordata.	„ Desnoyersi.
Melania inquinata.	Unio.
Corbula.	„ Solandri.
Calyptræa trochiformis.	Melania inquinata.
Pitharella Rickmani.	Melanopsis.
Melanopsis brevis.	Ostrea pulchra.
Unio.	„ Bellovacina.
Modiola Mitchelli.	Arca Cailliaudi.
Fusus.	Modiola Mitchelli.
Buccinum.	Pitharella Rickmani.
Rissoa.	Teredina.
Insect remains, discovered by Mr Evans.	Rissoa.
	Neritina.

'The preceding lists indicate the number and species I have been able to make out at Dulwich and Peckham. A reference to them points to the fact that, in proceeding from the former to the latter place, we are as it were going seawards, as the shells are more purely marine at Peckham; or rather, that they there lie *in situ*, and in far greater numbers, whilst the estuarine shells are decidedly most plentiful at Dulwich, the conglomerate yielding shells of all stages of growth, and in countless myriads. Again, I am of opinion that the *paludina* band having comparatively the same mean level at Dulwich and Peckham, is due to the sudden irruption of some gigantic river charged with the spoils of a continent, as the eroded nature of the *paludinæ* and the *pitharellæ* at Peckham is a fact demonstrative of their having been transported a considerable distance. But then I am reminded by Mr Prestwich, that the conditions of the London basin are ever variable and most perplexing; so that any attempt to define the configuration of land and water, and the limits of salt, lacustrine and fresh-water, during the epoch of the lower London tertiaries, is impossible with such a section as the one exhibited at Dulwich and Peckham.

'The presence in the clay of myriads of many species and varieties of leaves, in some instances mingled together in undistinguishable black masses, and in others small leaves exquisitely preserved—the venations as strongly marked and the serrated edges as sharp as when they flourished on the parent stem—all speak to us of vernal

and autumnal seasons affecting forests growing on the banks of some unknown and mighty river, subject to periodical changes in the level of its waters, which swept the land as it were of its organic remains and its alluvial deposits. That myriads of the *cyrenæ* were entombed whilst yet alive, I argue from the fact that in many cases the epidermis and hinge muscle still remained; and when first laid open, they shone in the sunlight with the iridescent hues which of old they possessed in life. The small diamond-shaped and hard enamelled scales, together with palatal teeth, evidence the existence of fish closely allied to *Lepidotus minor;* nor are chelonian and crocodilian remains wanting, and what I have reason to suppose are mammalian bones. Some doubt has been expressed on this last head, and the specimens now exhibited are somewhat obscure; still I believe little doubt exists as to the true character of the bone I have deposited in the British Museum.

'*Lastly.* Lignite was very plentiful at Dulwich, all more or less bored by a large and new species of *teredina*, some of the tubes being nearly half an inch in diameter, many having the closed valves of the mollusc at the extremity of the calcareous tube; it is worthy of remark, that the *paludinæ* and the casts of *pitharella* associated with them at Dulwich are much stained with oxide of iron, which has effectually removed all traces of the shell.

'The Bysso-arca (*Arca Cailliaudi*) referred to as rather plentiful at Peckham, was very rare at Dulwich. I only saw one specimen sufficiently distinct to be identified.

'Subjoined are the thicknesses of the several deposits passed through in sinking the shafts at Dulwich:—

'MAIN SHAFT.

	Ft.	In.
Virgin soil	0	9
Loamy clay (probably London clay)	12	0
Mottled clays	8	0
Mottled sands	4	6
Clay, with cyrenæ	6	0
Paludina band	0	9
Sandy clay	3	0
Oyster-bed—sandy	1	8
Dark blue clay, with leaves	4	0
Green sand, with comminuted shells	7	0
Shell conglomerate fractured, maximum thickness in gallery	4	0
Sump. Dark-blue clay, with leaves, lignite, shells, and bone	14	0
Total	65	8

'EAST SHAFT.

	Ft.	In.
Virgin soil	0	9
Loamy clay (probably London clay)	6	10
Red sand	5	6
Black clay, with leaves, lignite, etc.	2	2
Blue clay, ditto	1	10
Dark clay, ditto	1	6
Paludina band	0	8
Broken cyrenæ	1	0
Oyster-bed	1	0
Blue clay, with leaves	1	8
Dark sand	2	4
Blue clay, with leaves	1	6
Dark sand	9	3
Hard shelly rock bottom	—	—
	36	0

'WEST SHAFT.

	Ft.	In.
Virgin soil	0	9
Loamy clay (probably London clay)	9	3
Dark clay	2	0
Paludina band	0	6
Light sandy clay, with leaves	1	10
Blue clay, with oysters	3	0
Dark sand	0	8
Yellow sand	2	0
Blue clay, with leaves	2	6
Dark loamy land	0	8
Blue clay, with thin layers of land	9	0
Running sand, with water	4	0
Light-coloured loamy clay	2	6
Hard shelly rock bottom	—	—
	38	8

'In the gallery east of the main shaft the shell-conglomerate attained a maximum thickness of four feet; but in the extreme east and west shafts, the shelly rock forms the base on which the brickwork of the sewer rests.

'The depth of the main shaft being so much in excess of the others denotes a considerable elevation at this point; but as the open cuttings now in progress are less than thirty feet deep, it is highly probable that for some time we must bid farewell to the highly interesting shell-conglomerate and its associated clays and sands.'

CHAPTER IX.

UNDER ST PAUL'S.

VERY serious objections were raised in 1831 on the proposal to construct a sewer near St Paul's Cathedral, and the following correspondence—now historical—on the subject, was laid before the referees by F. C. Penrose, Esq., Surveyor to the Fabric of St Paul's.

19th August, 1831.

SIR,—Until Mr Acton's return I recommend you to suspend the works of the sewer on the south side of St Paul's Cathedral, and unless you do so immediately, I shall feel it my duty to apply to the Lord Mayor to that effect.—I am, etc.

(Signed) C. R. COCKERELL.

Mr Richard Kelsey.

32, Wilson Street, Finsbury Square,
19th August, 1831.

SIR,—Mr Acton left town yesterday morning for a few days; but I will take care to transmit your letter as early as possible.

Had Mr Acton remotely thought that the stability of St Paul's Cathedral could be in the least affected by the sewer he is now constructing, good feeling would have instantly prevented his attempting it; but, upon reconsideration, I trust you will see that there is no ground for alarm upon the subject, and you may be satisfied that every requisite precaution will be taken by the commissioners to complete their works without injury to any one.

I know that Mr Acton was not at all aware who was the surveyor to the Dean and Chapter; but it is certainly singular that, until so late as yesterday morning, you should have remained uninformed of a work which has been in progress for many weeks, especially as a Mr Lingard, who described himself to be sub-surveyor to St Paul's Cathedral, must have not only known it as matter of public notoriety in the neighbourhood, but was applied to by Mr Acton, as the only ostensible person he knew in the business, that the bar on the north side of the

Cathedral might be opened while the south side of the churchyard was necessarily closed.

After going through several official forms, Mr Acton succeeded in obtaining permission from the Bishop of Llandaff and the Lord Mayor for the passage of carriages going westward, and it will be matter of regret to him that, after taking so much pains, and seeing so many persons, he should not have been made acquainted with the existence of a gentleman whose office and professional rank would, as a matter of course, entitle him to information on the subject.

I shall, in Mr Acton's absence, feel happy to attend any appointment you may make; but you may rest quite assured that the work is in the hands of persons who will do everything which they feel necessary to execute their task in a satisfactory manner.—I am, etc.

(Signed) RICHARD KELSEY,
Surveyor's Clerk to the Commissioners of Sewers.

C. R. Cockerell, Esq.

AT a Public Meeting of the Commissioners of Sewers of the City of London and Liberties thereof, held this day, 24th August, 1831, in Guildhall:

Resolved,—Upon consideration of the surveyor's report, that although this Commission entertain no apprehension that the safety of the Cathedral Church of St Paul can be endangered by the sewer they are now constructing in St Paul's Churchyard, yet, to meet the wishes of the Dean of St Paul's, and to satisfy the public mind, they appoint and authorize Mr Telford and Mr Brunel, together with Mr Acton, on their part, to meet and confer with Mr Rennie and Mr Smirke, together with Mr Cockerell, on the part of the Dean and Chapter, and to report their opinion on the construction of the work, and the effect, if any, which it may have upon the foundation of the Cathedral, and that this Commission will be ready to receive and consider any suggestions which the said gentleman may have to offer for the further security of the work. And for the necessary information of the gentleman to whose judgment the matter is referred, it appears to the commissioners to be absolutely requisite that the surveyor to the Dean and Chapter should, by examination, ascertain the precise depth and extent of the foundations of the Cathedral, and the nature of the soil or strata upon which they rest, and more especially as to that part of the fabric opposite to the sewer now in progress, and whether any other

sewers or openings exist under any part of the Cathedral, and at what depth.

Resolved further, that the works in St Paul's Churchyard be suspended until the said report be received.

(Signed) F. J. Donne,
Principal Clerk.

Sewers' Office, Guildhall, 25th August, 1831.

Sir,—I am directed to acquaint you that Mr Sibley has been appointed (instead of Mr Telford, who was previously engaged) to confer respecting the construction of the public sewer on the south side of St Paul's Churchyard; and as the work is now suspended, the Commissioners hope to be favoured with an early reply.—I am, etc.,

(Signed) F. J. Donne,
Principal Clerk.

C. R. Cockerell, Esq.

Memorandum by Mr Cockerell.

St Paul's Churchyard, 1st September, 1831.

Met Mr Walker on the part of Mr Rennie; measured the depth of the well sunk at the east side of south transept, and found it 33 ft. 6 in.

The depth from top of well to level of street was 3 ft., leaving the depth of the well from the street pavement 30 ft. 6 in.

The workmen came to this depth at 4 o'clock P.M., on Wednesday, 31st August, when, finding the water come in fast upon them, they dug no lower; the water rose until 7 o'clock, 1st September, when, the sewer-pump beginning to ply, the water was cleared off in a great measure, but the bottom is now filled with water and sand, and the workmen state the sand (or bottom of the well) to have filled in about one-fourth.

A specimen of the sand and water is deposited in the vestry.

Well sunk on the south of transept in the street.

Measured and found this well 31 ft. below the street level.

The workmen arrived at this depth at 12 o'clock on 31st August, when, finding the water and sand come in upon them, they desisted.

Since then the sand and water have filled in 6 in. to a foot; the sand falling in from the sides, and undermining the sides (all round a 4-ft. well about 6 in.); it is observed that on the north side of well towards

Cathedral, the sand has come in in greater quantity, making the side of the circle northward irregular and flat.

In both wells, underneath the peat with the thickness of which varies from 3 ft. to 4 ft., sand and gravel in layers have been found to the depths above mentioned.

Called on Mr Allsop late Pellat and Green, and found his well 23 ft. below level of street, and the water has hitherto been 6 ft. to 8 ft. high, making the top of water 13 ft. to 17 ft. from the level of the street pavement.

Savile Row, 1st September, 1831.

Sir,—I beg to inform you that, in conformity with the suggestion of the Commissioners of Sewers, I have caused holes to be dug in three places, in order to ascertain the facts of the depth of the foundations of the Cathedral, and the nature of the strata upon which they are placed. These holes are on the west and east sides of the south transept, close to the sides of the fabric, and in the street at the south front of the south transept, the two latter (on the east and south) are as deep as the workmen have been able to dig with security, the sand and water coming in upon them, and a greater depth requiring pumping and steyning. These experiments leave no doubt of the accuracy of the historical account of the fabric.

These openings having been completed this morning, I take the earliest opportunity of communicating the result; and I have directed the deputy surveyor, Mr Lingard, who is in attendance in the Cathedral, to afford you every means of examining them with reference to the subject in hand.—I remain, etc.,

(Signed) C. R. Cockerell,
Surveyor to the Fabric of St Paul's.

J. Acton, Esq.

Red Lion Place, Giltspur Street,
1st September, 1831.

Sir,—Agreeably with your orders, I have measured the distance between the pavements near, and the sand in the shafts on the east and south sides of the south transept of St Paul's Cathedral, at different times—at one o'clock, at three, and at four; and find the distance in each shaft to be uniformly the same; that is, 33 ft. 3 in. in the east shaft, and 30 ft. 6 in. in the south. There is rather less water in

the shafts than when you were there, owing to the sewers' pumps having been in constant work.—I am, etc.,

(Signed) HENRY MUNN.

C. R. Cockerell, Esq.

Memorandum by MR COCKERELL, 2nd Sept., 1831.

	FT.	IN.
Mr Munn found the opening east of south transept . .	32	4
So that since yesterday the sand has risen . . .	0	11
Total .	33	3

Extract of Letter.

Wintershall, 2nd September, 1831.

Your letter is so far satisfactory as to show that the sand is a quicksand, and therefore dangerous to the church. The great error has been, to attempt making the sewer without due notice to you; and the question now is, whether the continuation of the sewer is dangerous to the edifice. Reasoning abstractedly, if the sides of the excavation could be kept from running in, and no displacement of the sand takes place, no danger can be apprehended; but if the sand is found to run, and cannot be kept back, the excavation is dangerous. The next question is, what is to be done? My answer is, that I shall be in town on Monday morning at ten, and decide accordingly, and visit St Paul's immediately.

(Signed) GEORGE RENNIE.

C. R. Cockerell, Esq.,
etc., etc., etc.

6th September, 1831.

SIR,—I am requested by Mr Smirke and Mr Rennie, appointed in conjunction with myself by the Dean and Chapter, to advise respecting the new sewer in St Paul's Churchyard, to say that, feeling the importance of the operation to the Commissioners of Sewers, to the public, and to the fabric, of as early a communication of their opinion on the subject as possible, they think no time should be lost, and finding a meeting of all the persons appointed is extremely difficult to arrange, and, from a meeting of five of the six persons to-day, that Mr Brunel coincides in a great measure with them respecting the

operation; they beg leave to recommend to the Commissioners of Sewers to adopt a line of sewage further removed from the fabric, their opinion being that great risk is incurred to St Paul's Cathedral by the present line.

That in the hope the Commissioners will find the means of adopting another line, they forbear to make any observations on the present or any other mode of execution of the work in the present line, their conviction being that the present line cannot be carried into effect with due regard to the security of the Cathedral.

(Signed) C. R. Cockerell.

Mr Acton,
Surveyor to the Commissioners of Sewers.

Stratford Place, 6th September.

My dear Cockerell,—I did not receive your note till yesterday evening, and having made several engagements for this morning, I could not attend the discussion referred to in your note, nor, indeed, did you say where it was to take place.

When you communicate the observations you have made upon the water and sand in the wells, I think there will be no question about the 'prudence' of altering the line of the sewer.

Yours, etc.,
(Signed) Robt Smirke.

C. R. Cockerell, Esq.

Memorandum by Mr Cockerell.

We are informed by the 'Parentalia,' p. 260, which is the only authentic account I am acquainted with, that the fabric of St Paul's is founded on a bed of potearth, six feet thick to the north, and four feet thick on the south; that under this bed, down to the level of low-water mark, is a sand so loose as to run through the fingers, to the thickness of about 40 ft., to the original London blue clay; the bed of potearth is found from 12 to about 20 ft. below the present surface, by various experiments, both within the crypt and in the street; the present sewer is 35 feet below the surface of the street, at the south gate, consequently 15 ft. below the bed of potearth; the apprehension is the removal of a vein of running sand, connected with the bed described, may endanger the stability of the bed of potearth superincumbent, with the Cathedral placed upon it. Not only the present operation affords abundant grounds for such an apprehension, but if in so large

a drain, 6 × 7 feet, at least 20 feet circumference, by 400 or 500 feet long, at any time the smallest accident in the drain might admit the running sand with the stream of water, and thus carrying the sand through the sewer, gradually undermine the Cathedral itself.

That the account of 'Parentalia' is correct, is proved by the fact that the opening in the bed of sand in Paul's Chain has given vent to the water in the sand, so as to oblige the erection of a steam-engine to keep the sewer already building dry, and secure the workmen; and all the wells round the churchyard north and south have been dried as far as the Newgate Market wells. The excavation to the south of the Cathedral is inundated with a running sand and water, so as to put the workmen and works in great danger, only warded by planking and caulking with the utmost attention by 3 and 4 feet at a time; such planking is left behind the walls of the sewers, but it is impossible to retain the sand; consequently it may be feared that much more than the contents of the sewer, 6 × 7, is removed, and already damage may have been occasioned; the continuing of it seems obviously fraught with the utmost peril to the Cathedral.

Copy of Report.

We, the undersigned, having by the direction of the Dean and Chapter of St Paul's Cathedral examined and considered the situation in which the Commissioners of Sewers have begun to construct a sewer on the south side of the Cathedral, and considering that the footings of the walls rest chiefly upon a thin bed of potearth, beneath which is a very deep stratum of sand and gravel containing a considerable quantity of water, and that the walls of the south transept have sunk, and are fractured, apparently, by reason of some partial weakness in this part of the foundation; are of opinion that the security of the fabric will be endangered if the sewer is constructed in the churchyard.

We are likewise of opinion, that however carefully the work may be constructed, it will be scarcely possible to prevent some degree of motion from taking place in the said stratum of sand and gravel, either during the construction of the sewer, or at a future period, in consequence of it. And we therefore earnestly recommend that the Commissioners should be requested to abandon this line for their sewage, and remove it to such a distance as will prevent all risk of injury to the perfect security of the Cathedral.

(Signed) Robert Smirke.
George Rennie.
C. R. Cockerell.

Saville Row,
10th September, 1831.

Copy of Letter obtained from City Commissioners of Sewers.

Sewers' Office, Guildhall, 21 September, 1831.

Sir,—The Commissioners of Sewers of the City of London and liberties thereof have had under their consideration the report of the surveyors appointed in relation to the public sewer intended to be constructed through part of St Paul's Churchyard, and I am directed to acquaint you, the Commissioners have ordered the shaft near the south transept of the Cathedral to be filled up forthwith, and to be made secure under the direction of their surveyor; and I am further to acquaint you, they have determined that a portion of the course of the sewer shall be diverted from the intended line; and that, instead of continuing it westward on the south side of St Paul's Churchyard, it shall be constructed from Watling Street, through part of the Old Change and Little Carter Lane, to communicate to the sewer recently built in Paul's Chain.—I am, etc.

(Signed) F. J. Donne,
Principal Clerk.

P.S.—I have been directed to make known the determination of the Commissioners to the Lord Bishop of Llandaff.

C. R. Cockerell, Esq.,
etc. etc. etc.

CHAPTER X.

THE GIANT SEWER.

WHEN the late Mr Wordsworth stood upon old Westminster Bridge on the morning of September 3rd, 1803, and composed that famous sonnet on the sleeping city, he could hardly have been aware of the dead and living organisms which even then formed part of the flowing river. As nothing offended the nostrils of the poet, he felt at liberty to write that graceful line—

'The river glideth at his own sweet will,'

in ignorance, no doubt, of all the impurities which the broad stream held in solution. It was left for a later and more sanitary age to destroy part of the poet's dream by introducing the microscope in no friendly spirit. Mr R. Etheridge, F.G.S. and F.R.S.E., in a report upon Thames mud and water, made to the Government referees on

the Metropolitan Main Drainage in 1857, has spared no pains to expose the inner pollution of our unfortunate river. His report is very elaborate and very learned, and while some readers may think that a plain translation ought to have been given, others will doubtless feel that half the horror lies in the language.

Dating from the Philosophical Institution, Bristol, Mr Etheridge says :—

'Gentlemen, I beg to transmit you herewith the results of the microscopical examination of the Thames mud and Thames water, which I undertook at your request.

'The samples are marked and numbered as in the following list.

'No. 1 to 18 inclusive, constituting the samples of mud and deposit; and letters (A.) and (B.), the two samples of water; one of which I designate thick water (A.), collected from a pool, the other clear (B.)—comparatively clear water from the tideway at low water, at Hungerford Pier. The mud, consisting of the very thin surface deposit, was collected from the last or newest deposit of the Thames at about low water, early in the morning, before the great steamboat traffic on the river had commenced, which has been found to prevent the copious subsidence of solid matter which takes place during the night.

'I have adopted your suggestion of a classification, which, although not following any special or generally recognized system, shows most clearly the natural habitat of the living organisms, and their relation to the present subject.

'The term *stercorine* includes those forms whose natural habitat is peculiarly in sewage or other water holding matter in a state of decomposition.

'In respect to the numerical expression, indicating the proportion of the organic and inorganic matters submitted to my notice, it will be readily seen that to have given critically exact terms would have involved a much larger scope, both of time and appliances, than was available; but my judgment, after reviewing the whole question, and having regard to all the specimens, leads me to consider that twelve to fifteen per cent. of the whole consisted of organic matter, living and in a state of decomposition, including forms called into existence under the peculiarly favourable influences and circumstances for their development, and the remainder consists of inorganic matter, for the most part *alluvial*, but containing at least twenty per cent. of abraded road material, granite, porphyry, and other crystalline rocks, and about thirty per cent. of what was evidently crushed flint, gravel, and earthy deposit of the basin of the Thames.

SAMPLE 1.

(Fifty yards below Southwark Bridge.)

I.—ORGANIC MATTER.—LIVING ORGANISMS:

Animals:

a. Fluviatile forms:
- Class—Infusoria: Euplotes charon; Uvella virescens; Kolpoda cucullus.
- Class—Diatomaceæ: Navicula amphisbœna; Gallionella.

b. Marine forms:
- Class—Foraminifera: Rotalia.
- Class—Zoophyta: Gorgonia (spiculæ of).

c. Stercorine forms:
- Class—Annelida: Lurco; Vibrio anguillula glutinis; Red worm.
- Class—Infusoria: Oxytricha gibba; Paramecium aurelia.

Plantæ:

Filaments of fresh-water algæ.

II.—ORGANIC MATTER IN A STATE OF DECOMPOSITION:

a. Animal matter, or tissues:
- Muscular fibre.
- Ochreous substance.

b. Vegetable matter, or tissues:
- Spiral vessels (probably rhubarb) abundant.
- Scalariform and dotted ducts.
- Cellular tissue (water plants).
- " " sedge.
- " " rhubarb (probably).
- Siliceous epidermal coverings (wheat).
- " " " (barley).
- Pigment cells of wheat (caryopsis).
- Cellular tissue, potato.
- Hairs of plants (labiatæ).
- " " (compositæ).

c. Fæcal matter: Black-looking (carbonaceous matter) substance in large quantities. This carbonaceous substance seems to be a natural carbon; masses often striated and of indeterminate character, and filthy in the extreme, constitute a great portion of this deposit. I doubt not it is human fæces disintegrated, and contains the remains of digested and chemically altered food; muscular fibre can be detected in many of the masses.

III.—INORGANIC MATTER:

a. Extremely fine particles of argillaceous matter (alluvion), finely divided, and having no definite form, being the chief muddy deposit of the river, argillaceous.

b. Water-worn, and angular siliceous or quartz grains (ground flint), in great quantity.

c. Felspar (small portions), mica, etc., appears to be the disintegration of granite and other crystalline rocks, and general washings of the streets of the city.

This sample was most offensive and filthy, evidently sewage deposit or accumulation, the great mass of organic matter being decomposing vegetable and animal organisms, having its origin in human food, and other city sources, and the living forms, such as would be found in sewage and other similar conditions only.

SAMPLE 2.

(Fifty yards below Southwark Bridge.)

I.—Organic Matter.—Living Organisms:

			Animals:	
a. Fluviatile forms	Class—Diatomaceæ	Navicula amphisbœna.		
		Gallionella.		
	Class—Infusoria	Kolpoda cucullus.		
b. Marine forms	Class—Foraminifera	Rotalia.		
	Class—Zoophyta	Gorgonia (spiculæ of).		
c. Stercorine forms	Class—Annelida	Lurco	Abundant.	
		Red worm		
	Class—Infusoria	Oxytricha gibba		
			Plantæ:	
			Several filaments of conferva.	

II.—Organic Matter in a State of Decomposition:

a. Animal matter
- Muscular fibre (masses).
- Brown ochreous substance.

b. Vegetable matter
- Cellular tissue of plants (several kinds).
- „ „ lettuce and stomata.
- „ „ onion.
- „ „ potato.
- Starch grains of (probably) potato.
- Spiral vessels (of rhubarb probably), large quantity, in masses.
- Hairs of plants (compositæ and labiatæ).
- Epidermal coverings (siliceous), wheat straw.
- Pigment cells (wheat caryopsis).
- Fig seeds (2).
- Palaæ of grass.
- Small fragments of deal, well developed.

c. Fæcal matter — Black-looking and ochreous-coloured masses, blotched and striated, mucous; appears evidently to be altered human food. This constitutes a large proportion of the mass under examination.

III. Inorganic Matter:

a. Fine particles of argillaceous matter (alluvion), having no definite form; the chief muddy accumulations from the banks of the river.

b. Water-worn, angular, and large siliceous or quartz grains, of all forms, in large quantity.

c. Little felspar and mica, as in Deposit 1, all evidently from the disintegration of the city and the washings into the sewers.

SAMPLE 3.

(Fifty yards below Southwark Bridge.)

I.—Organic Matter.—Living Organisms:

			Animals:
a. Fluviatile forms	Class—Infusoria		Paramecium aurelia. Kolpoda cucullus.
	Class—Diatomaceæ		Gallionella.
b. Marine forms	Class—Foraminifera		Rotalia.
c. Stercorine forms	Class—Annelida		Lurco. Vibrio anguillula glutinis. Red worm.
	Class—Infusoria		Oxytricha gibba.

II.—Organic Matter in a State of Decomposition:

a. Animal matter	Ochreous substance. Muscular fibre and animal matter in abundance.
b. Vegetable matter	Spiral vessels abundant and in large masses (rhubarb probably). Cubical parenchyma (water plant). Prismatic. Pigment cells (caryopsis of wheat). Siliceous cuticle of wheat straw. Cellular tissue of potato.
c. Fæcal matter	Fæcal matter most abundant.

III.—Inorganic Matter:

The inorganic bodies in this deposit exactly resemble those before described, both as regards quantity and general condition.

Free sulphuretted hydrogen escaped in considerable quantities from this sample; indeed, the mass exhibited a large quantity of decomposing vegetable and animal matter, in masses, with partial and almost complete decomposition.

SAMPLE 4.

(Fifty yards below Southwark Bridge.)

I.—ORGANIC MATTER—LIVING ORGANISMS:

Animals:

c. Stercorine forms — Class—Annelida — Lurco. Vibrio anguillula glutinis.
Class—Infusoria — Oxytrica gibba. Paramecium aurelia.

No fluviatile or marine forms detected in this sample.

II.—ORGANIC MATTER IN A STATE OF DECOMPOSITION:

a. Animal matter — Ochreous and carbonized matter, striated and blotched; decomposing.

b. Vegetable matter — Spiral vessels, Cellular tissue of various kinds } abundant.
Hairs of plants (compositæ).
Hairs of wheat from caryopsis.
Siliceous epidermis of wheat straw.
Starch grains (coloured by iodine).

c. Fæcal matter — The same black and brown carbonaceous-looking matter, with patches of muscular fibre (altered), some of indeterminate character. The whole of this, I have no doubt, is fæcal, and from the slaughter-houses, etc., etc., in large quantities.

III.—INORGANIC MATTER:

This so closely resembles those before described, that description is unnecessary.

This deposit is filthy in the extreme: chiefly of sewage origin, and yielded sulphuretted hydrogen freely.

SAMPLE 5.

(Fifty yards below Southwark Bridge.)

This sample or mass is more impure, and contains more decomposing organic tissues, than the previous, No. 4.

I.—ORGANIC MATTER—LIVING ORGANISMS:

Animals:

c. Stercorine forms — Class—Annelida — Lurco. Red worm; very numerous. Ova of ditto.
Class—Infusoria — Oxytricha gibba.

No fluviatile or marine forms detected in this matter.

II.—Organic Matter in a State of Decomposition:

a. Animal matter - { Much animal matter; masses of carbonized matter of fleshy consistency, striated; evidently muscular fibre.

b. Vegetable matter { Cellular tissue, large masses; Spiral vessels, large masses } abundant. Dotted ducts. Epidermal siliceous cuticle of wheat straw and caryopsis. Starch grains of potato. Hairs of plants. Pigment cells of some plant.

III.—Inorganic Matter:

Precisely of the same mineral and lithological characters as those previously examined; the quartz grains seem more firmly divided and rounded than that of Nos. 2 and 3.

SAMPLE 6.

(Similar in general condition to No. 5.)

I.—Organic Matter—Living Organisms:

c. Stercorine forms { Animals: Class—Annelida { Lurco, abundant. Vibrio anguillula glutinis. Class—Infusoria { Kolpoda cucullus, Paramecium aurelia, Oxytricha gibba } few.

No fluviatile or marine organisms detected.

II.—Organic Matter in a State of Decomposition:

b. Vegetable matter { Plantæ: Cellular tissue, potato. Spiral vessels (sparingly). Loose cellular tissue (abundant). Hairs of plants. Siliceous covering to wheat straw. Parenchymatous tissue (like cabbage).

a. Animal matter - { Hairs of mammalia, ox or cow, " " man - } In several little masses. The same ochreous substance. Brown or black carbonized matter, etc.

II.—Inorganic Matter:

a. A much larger proportion of grains of silica in this than in either of the other deposits, and less alluvial or clayey matter.

b. Felspar and mica also more abundant.

No sulphuretted hydrogen obtained from this sample.

The samples taken from this locality, when carefully examined, seem to much resemble those from Southwark Bridge; but, on the whole, the amount of dead organic matter is even greater than those previously examined, and the inorganic debris considerably more so.

SAMPLE 7.

(Hungerford Pier.)

I.—ORGANIC MATTER:

a. Fluviatile forms:
- Class—Diatomaceæ — Animals: Synedra ulna; Gyrosigma hippocampa; Nitzschia elongata; Navicula amphisbœna.
- Class—Infusoria — Kolpoda cucullus.

b. No marine organisms detected.

c. Stercorine forms:
- Class—Annelida — Red worm; Lurco; Vibrio anguillula glutinis.
- Class—Infusoria — Paramecium aurelia; Oxytricha gibba.

Plantæ: Filaments of fresh water algæ.

II.—ORGANIC MATTER IN A STATE OF DECOMPOSITION:

a. Animal matter:
- Much decomposing animal matter, ochreous-looking, and partly carbonized.
- Hairs of mammalia.

b. Vegetable tissues:
- Spiral vessels (abundant).
- Cellular tissue (cabbage).
- " " (potato).
- Siliceous covering (epidermal), wheat straw.
- Dotted ducts.
- Hairs of plants.

c. Fæcal matter — The same black carbonized-looking masses, with pigment tissue and mucous masses.

III.—ORGANIC MATTER:

a. Very finely divided quartz grains, forming fine dust-like deposit, but all siliceous. Some of the worn fragments large, and rounded.

b. Felspar, little or none.

SAMPLE 8.

(Hungerford Pier.)

This deposit much resembles No. 7.

I.—Organic Matter—Living Organisms:

			Animals:
a. Stercorine forms	Class—Annelida		Red worm.
			Vibrio anguillula glutinis.
	Class—Infusoria		Kolpoda.
			Euplotes charon.
			Paramecium chrysalis.
	Class—Diatomaceæ		Synedra ulna.
			Navicula (several species).

II. Organic Matter in a State of Decomposition:

b. Vegetable matter	Cellular tissue (loose), abundant.
	Spiral vessels (probably rhubarb).
	Hairs of plants.
	Siliceous epidermal tissue (gramineæ).
	Dotted vessels.
a. Animal matter, etc., fæcal	Much matter (animal) in a state of putrefaction; appears to be muscular fibre and animal food acted upon by digestion. The ochreous substance (brown) mentioned in all the previous deposits.

III.—Inorganic Matter:

a. The mineral and lithological character of this closely resembles that of No. 7, the amount of disintegrated silica being very large.

b. Felspar and mica, sparingly.

SAMPLE 9.

(Hungerford Pier.)

I.—Organic Matter—Living Organisms:

			Animals:
a. Stercorine forms	Class—Annelida		Vibrio anguillula glutinis.
			Lurco.
			Red worm.
	Class—Infusoria		Kolpoda cucullus.
			Paramecium chrysalis.

II.—Organic Matter in a State of Decomposition:

		Plantæ:
b. Vegetable matter, etc.	Cellular tissue (loose and abundant).	
	Spiral vessels (rhubarb probably).	
	Siliceous coverings to the gramineæ.	
	Hairs of plants.	

a. Animal matter, etc., fæcal - - - - - The decomposing animal matter is much the same here as in No. 8, chiefly fæcal, and very offensive.

III.—INORGANIC MATTER:

a. Nearly all the sedimentary mass of this sample consisted entirely of quartz grains, much rounded and worn, the particles of argillaceous deposit or matter being less in proportion than those examined from Southwark Bridge.

d. Felspar and schorly-like-looking crystals broken up; also much carbonaceous matter, pieces of coal, and ashes.

This sample yielded sulphuretted hydrogen copiously.

SAMPLE 10.

(Hungerford Pier.)

This sample so closely resembles Nos. 8 and 9 in every respect, that it needs no enumeration as regards the organic or inorganic contents.

It yielded *sulphuretted hydrogen*, was *most offensive*, and contained much fæcal matter.

The siliceous accumulations, gritty particles, and debris of the crystalline rocks extremely large, as noticed in No. 9. The same coaly matter.

SAMPLES 11 AND 12.

(Hungerford Pier.)

I cannot add or detect for addition anything in these two samples different from those mentioned as coming from the same locality; the organic and inorganic conditions are precisely the same, being equally offensive, which undoubtedly arises from sewage deposit.

I cannot help remarking upon the excess of ground siliceous particles and debris of granitic and crystalline rocks in these samples from Hungerford Pier, especially the finely-pulverized silica of all colours, red, brown, white, etc.; they are also larger in size than those examined from Southwark Bridge; much of this looks like the finely-powdered or disintegrated gravel of the Reading district, mixed with granite debris.

SAMPLE 13.

(Temple Pier.)

As far as the organic and fæcal matter can be diagnosed in the samples brought from this locality, it much resembles those previously examined; there is a greater excess in quantity of the *respective organisms*, both living and that *undergoing decomposition*, especially the latter, which may be justly termed filthy in the extreme.

II.—Organic Matter—Living Organisms:

			Animals:
a. Stercorine forms	Class—Annelida*		Lurco.
			Red worm.
			Vibrio anguillula glutinis.
	* These are here much decomposed.		
	Class—Infusoria		Swarms with monads which live amongst the masses of annelida (which are much decomposed).
			Paramecium aurelia.
b. Marine forms	Class—Foraminifera		Rotalia.
c. Vegetable forms	Class—Plantæ		Filaments of fresh-water algæ.

II.—Organic Matter in a State of Decomposition:

		Plantæ:
a. Vegetable tissues		Spiral vessels (probably rhubarb).
		Dotted ducts.
		Cellular tissue (loose).
		Ditto - - (potato).
		Siliceous coverings of the gramineæ.
		Hairs of plants.
b. c. Animal matter, fæcal		Much decomposing and slimy matter, of the same nature as that previously described, the ochreous and carbonized-looking masses being abundant. This is undoubtedly animal and fæcal matter.

III. Inorganic Matter:

The siliceous and crystalline particles here are much worn and broken down, although a considerable portion are fresh and angular, or bear a more crystalline character than that constituting the mass of the deposit at Southwark Bridge.

There is also much coaly matter in this mass, true coal: its origin might be from the coal-yards.

SAMPLE 14.

(Temple Pier.)

I.—Organic Matter—Living Organisms:

			Animals:
a. Stercorine forms	Class—Annelida		Lurco.
			Red worm.
			Vibrio anguillula glutinis.
	Class—Infusoria		Paramecium.
			Monads (swarming).

b. Marine forms - - Foraminifera - - - Rotalia.

c. Vegetable forms - Class—Algæ - - - Filaments of conferva.

II.—Organic Matter in a State of Decomposition:

a. Vegetable tissue - Plantæ:
- Spiral vessels (abundant).
- Cellular tissue.
- Ditto - - with stomata (fresh).
- Hairs of plants.
- Potato cells and starch grains.

b. Animal tissue - - Muscular fibre and fleshy-looking masses in considerable quantity.

c. Fæcal matter - - A large quantity of decomposing ochreous brown and black-looking masses, striated, and partly cellular.

III.—Inorganic Matter:

a. The usual condition of rounded and angular siliceous grains, finely pulverized.

b. Much argillaceous matter, and fine sediment.

c. Felspar, mica, sparingly.

This sample was extremely filthy, and yielded sulphuretted hydrogen freely; the quantity of vegetable and animal matter under decomposition abundant. *Fœtid and filthy.*

SAMPLE 15.

(Temple Pier.)

This sample was precisely the same as No. 14, as regards the vegetable and animal matter living and under decomposition; the quartz ore particles were more numerous, and rolled; the chief feature in this, as in the other, being the masses of tissues under decomposition.

There was also much coaly substance, evidently true coal, finely sifted and washed.

SAMPLE 16.

(Temple Pier.)

I.—Organic Matter—Living Organisms:

a. Stercorine forms - Animals:
- Class—Annelida - - Lurco.
- Class—Annelida - - Vibrio anguillula glutinis.
- Class—Infusoria - - Kolpoda cucullus.
- Class—Infusoria - - Paramecium chrysalis.
- Class—Infusoria - - Monads (swarming).

b. Marine forms - - Class—Foraminifera - Rotalia.
c. Vegetable forms - Class—Algæ - - - Empty filaments of algæ.

II.—ORGANIC MATTER IN A STATE OF DECOMPOSITION:

Plantæ:

a. Vegetable tissue - { Spiral vessels, Cellular tissue } in masses and quantity. Hairs of plants. Siliceous epidermis (wheat straw).
b. Animal tissue - - { Masses of yellow matter, striated, which appears to be muscular fibre.
c. Fæcal matter - - { Ochreous, dark brown, carbonaceous-looking masses, as before described and noticed.

III.—INORGANIC MATTER:

The same as in other samples, the difference being little or none.

SAMPLE 17.

(Temple Pier.)

Nothing can be said respecting this sample more than has been done in Nos. 13, 14, 15, and 16; in every respect it is the same, both as regards the organic and inorganic proportions.

SAMPLE 18.

The animal and vegetable matter in this sample very abundant, the whole rapidly decomposing.

I.—ORGANIC MATTER:

Animals:

a. Stercorine forms - { Class—Annelida - - { Lurco. Red worm. Vibrio anguillula glutinis.
Class—Infusoria - - { Paramecium aurelia. Kolpoda cucullus. Oxytricha gibba.
Class—Diatomaceæ - { Naviculæ. Synedra.

Plantæ:

a. Vegetable forms - Class—Algæ - - - Filaments of conferva.

II.—ORGANIC MATTER IN A STATE OF DECOMPOSITION:

Plantæ:

a. Vegetable tissue - { Spiral vessels - - - } in large masses. Cellular tissue - - } Hairs of plants. Starch grains (potato). Epidermal covering (gramineæ).

The same ochreous and fæcal matter in profusion.

III.—INORGANIC MATTER:

The condition of the general mass of the sedimentary matter in this sample is the same as in the other deposits from the same locality.

WATER (A.)

(Thick Water.) (Hungerford Pier.)

Nothing can exceed the filthy condition of this sample of water, which contained, with the exception of the annelid forms (in quantity), almost all the conditions registered in the sedimentary samples.

The contents I arrange and list in the same manner as the samples of mud.

I.—ORGANIC MATTER—LIVING ORGANISMS:

Animals:

a. Stercorine forms
- Class—Annelida — Lurco (few).
- Class—Infusoria
  - Kolpoda cucullus.
  - Paramecium aurelia.
  - Oxytricha gibba.

b. Fluviatile forms
- Ova of mollusca (lymnæa).
- Portions of carapaces of several entomostraca.

b. Fluviatile forms — Class—Diatomaceæ
- Navicula amphisbœna.
- Synedra ulna.
- Gomphonema, 2 sp.

II.—ORGANIC MATTER IN A STATE OF DECOMPOSITION:

Plantæ:

Vegetable matter
- Spiral vessels (of rhubarb probably).
- Hairs of plants (several kinds).
- Colpenchymatous tissue and stomata.
- Cellular tissue (floating masses).
- Wheat straw tissues (siliceous).
- Fungus-like-looking masses, flock-like, in suspension. (Torulæ ?)

The fæcal and brown striated fibrous substance observed in all and every sample before mentioned was equally abundant here, and rapidly settled into regular layers, according to their respective densities. The quartzose grains and argillaceous sediment were most copious, and formed one quarter of the whole; another quarter was entirely organic matter; the remainder, water, was turbid, and never became clear.

WATER (B.)

(Clear Water.) (Hungerford Pier.)

The condition of this water differs remarkably from the former (A.) in every respect, and appears to be the general running water of the Thames. After careful filtering, the washed or retained matter was abundant in organic beings and organic matter, all of which partook more or less of those forms expected to be found in water such as would constitute the great mass of the Thames at this locality.

Most of the contents of this water was disseminated through the whole, there being little or no sediment, what little did occur being non-organic, and consisted of finely-divided quartz grains and argillaceous matter; but even in this sample the same ochreous body (striated) occurred, which is undoubtedly striated muscular fibre.

I.—Organic Matter—Living Organisms. Animals:

Fluviatile forms	Class—Infusoria		Vorticella nebulifera (abundant).
			Vorticella campanula.
			Euplotes charon.
			Monas crepusculum.
			Bodo.
Fluviatile forms	Class—Diatomaceæ		Gallionella distans.
			Gomphonema.
	Class—Zoophyta		Spiculæ of fresh water sponge.
			Human hair (little).
	Class—Crustacea		Ova of Daphnæ.

II.—Organic Matter in a State of Decomposition:

Plantæ:

Filaments of torulæ (fungi).
Cellular tissue of plants.
Hairs of plants.
Fragments of wheat husks.

Animal matter - Brown striated muscular fibre.

III.—Inorganic Matter:

Little sediment of quartz and argillaceous grains.

Dr Hofmann, F.R.S., and Mr H. M. Witt, follow up this attack in a report upon the 'Influence of the Sewage on the Composition of Thames' Water.'—'In order,' they say, 'to gain some insight into the manner in which the discharge of the London sewage into the river affects the composition of the Thames' water, a number of specimens, taken by the referees of the Metropolitan Main Drainage Scheme at different points of its course, were submitted to an analysis by us, in which the total amount of solid matter, the quantity of mineral, and the quantity of organic matter, were carefully determined. The results of the experiments are embodied in the following Table, which gives likewise the date on which the samples were collected, and the locality whence they were derived. It deserves to be mentioned, that the samples were delivered to us by the referees simply labelled with the letters (likewise recorded in the Table), so that the places whence they were taken were not known to us at the time the experiments were performed.

ANALYSES of the WATER OF THE THAMES, taken at Different Points of its Course.

Label of Sample	A. 1, 2, 3, & 4.	B. 5, 6, 7, & 8.	C. 9, 10, 11, & 12.	D. 13, 14, 15, & 16.	E. 17, 18, 19, & 20.	F. 21, 22, 23, & 24.	H. 29, 30, 31, & 32.	K. 43, 44, 45, & 46.
Point whence taken	Half a mile below Richmond Bridge.	Above Teddington Lock and Weir.	Half a mile below Kew Bridge.	Half a mile below Hammersmith Bridge.	Half a mile below Hammersmith Bridge.	Half a mile below Kew Bridge.	Wandle River, Wandsworth, below the mill and sewer.	Opposite Wandsworth Lock.
Date	14 March, 5.5 p.m.	14 March, 6.35 p.m.	16 March, 2.0 p.m.	16 March, 3.5 p.m.	16 March, 4.35 p.m.	16 March, 5.20 p.m.	18 March, 12.0 noon.	18 March, 6.0 p. m.
Depth of Water	High water, 5 feet.	High water, 7 feet.	Low water, 5 feet.	Low water, 7 feet.	High water, 13 feet.	High water, 10 feet.	Low ebb.	Low water, 14 feet.
SUSPENDED MATTER: (*Grains per Gallon.*)								
Mineral	- -	- -	3·32	2·56	2·20	- -	- -	- -
Organic	- -	- -	0·71	0·52	0·69	- -	- -	- -
TOTAL	0·57	0·36	4·03	3·08	2·89	0·64	0·77	0·81
DISSOLVED MATTER: (*Grains per Gallon.*)								
Mineral	19·03	16·49	19·75	18·40	17·92	17·38	22·18	21·44
Organic	0·99	1·43	1·13	0·87	1·30	0·85	1·40	1·17
TOTAL	20·02	17·92	20·88	19·27	19·22	18·23	23·58	22·61
TOTAL Amount of Solid Matter Suspended and Dissolved: (*Grains per Gallon.*)								
Mineral	- -	- -	23·07	20·96	20·12	- -	- -	- -
Organic	- -	- -	1·84	1·39	1·99	- -	- -	- -
TOTAL	20·59	18·28	24·91	22·35	22·11	18·87	24·35	23·42

ANALYSES of the WATER OF THE THAMES, taken at Different Points of its Course.

Label of Sample	L. 47, 48, 49, & 50.	M. 51, 52, 53, & 54.	O. 55, 56, 57, & 58.	P. 59, 60, 61, & 62.	Q. 63, 64, 65, & 66.	S. 71, 72, 73, & 74.	T. 79, 80, 81, & 82.	V. 75, 76, 77, & 78.	W. 83, 84, 85, & 86.
Point whence taken	Opposite Wandsworth Lock.	Westminster Bridge, under the fifth arch.	London Bridge, centre arch.	Westminster Bridge.	London Bridge, centre arch.	Opposite Victoria Docks, Blackwall.	Opposite Victoria Docks, Blackwall.	Rainham Creek.	Rainham Creek.
Date	18 March, 6.0 p.m.	19 March, 6.30 a.m.	19 March, 1.15 p.m.	20 March, 2.0 p.m.	20 March, 6.45 a.m.	20 March, 1.20 p.m.	21 March, 8.20 a.m.	21 March, 10.50 a.m.	21 March, 6.0 p.m.
Depth of Water	High water, 19 feet.	High water, 21 feet.	Just before flood, 12 feet.	Just at flood, 8 feet.	High water, 24 feet.	Low water, 14 feet.	High water, 30 feet.	High water, 36 feet.	Low water, 14 feet.
SUSPENDED MATTER: (*Grains per Gallon.*)									
Mineral	5·48	3·23	4·40	1·83	2·52	3·44	7·42	44·37	37·81
Organic	1·48	0·92	1·03	0·55	0·96	0·79	1·40	9·24	5·97
TOTAL	6·96	4·15	5·43	2·38	3·48	4·23	8·82	53·61	43·78
DISSOLVED MATTER: (*Grains per Gallon.*)									
Mineral	18·19	20·26	19·27	17·81	20·37	22·21	44·20	127·65	126·04
Organic	0·88	1·02	1·16	0·94	1·32	1·24	0·88	3·33	1·48
TOTAL	19·07	21·28	20·43	18·75	21·69	23·45	45·08	130·98	127·52
TOTAL Amount of Solid Matter Suspended and Dissolved: (*Grains per Gallon.*)									
Mineral	23·67	23·49	23·67	19·64	22·89	25·65	51·62	172·02	163·85
Organic	2·36	1·94	2·19	1·49	2·28	2·03	2·28	12·57	7·45
TOTAL	26·03	25·43	25·86	21·13	25·17	27·68	53·90	184·59	171·30

'In glancing at the results contained in the Table,' say the chemists, 'it is at once obvious that the amount of suspended matter contained in the different specimens of water cannot possibly be considered as representing the degree of sewage-pollution of the river.

'The mere *amount of mud* affords no evidence of the extent of contamination with sewage; all rivers necessarily carry along large quantities of mud, which, if the water be agitated in consequence of the current, or by the traffic of steamboats, is prevented from settling and renders the water turbid. When the bottom of the Thames is stirred up at Kew or Richmond, the water becomes as thick and opaque as at London Bridge; in fact, our analyses show that at Rainham Creek, which the London sewage probably never reaches, the river at the time the sample was taken was more muddy than at any other point in its course.

'It is rather the *chemical nature of the mud*, and especially the per centage of *organic matter* and of *nitrogen*, from which the contamination with sewage within certain limits can be inferred. We have not determined the amount of nitrogen in the mud, but even the per centage of organic matter is sufficiently characteristic of its nature.

TABLE.—PER CENTAGE of ORGANIC MATTER in the Mud at Different Points in the River's Course.

(Calculated from the relative Proportion of Mineral and Organic Matter given in the preceding Table.)

At Kew Bridge. C.	At Hammersmith Bridge. D.	Wandsworth Lock. M.	Westminster Bridge (High Water.) L.	Westminster Bridge (Flood.) P.	London Bridge (High Water.) Q.	London Bridge (Flood.) O.	Victoria Dock (Low Water.) S.	Victoria Dock (High Water.) T.	Rainham Creek (High Water.) V.	Rainham Creek (Low Water.) W.
17·61	16·91	21·32	22·14	23·09	27·69	19·00	18·69	15·88	17·22	13·63

'This Table speaks for itself; the maximum being at London Bridge, and the proportion of organic matter in the mud steadily declining in either direction.'

After these cruel and searching analyses, who can turn again with any feeling of pride and pleasure to that fine poetical description of Sir John Denman?—

> 'My eye, descending from the hill, surveys,
> Where Thames among the wanton valleys strays:
> Thames, the most loved of all the Ocean's sons,
> By his old sire, to his embraces runs,
> Hasting to pay his tribute to the sea,
> Like mortal life to meet eternity.
> Though with those streams he no resemblance hold,
> Whose foam is amber, and their gravel gold;
> His genuine and less guilty wealth t' explore
> Search not his bottom, but survey his shore.
> • • • •
> Nor are his blessings to his banks confined,
> But free and common as the sea or wind.
> • • • •
> Oh could I flow like him, and make his stream
> My great example as it is my theme!
> Though deep, yet clear, though gentle, yet not dull,
> Strong without rage, without o'erflowing, full.'. . . .

Full, indeed, murmur Messrs Etheridge, Hofmann, Witt, and a host of others; too full to be pleasant to a population of three millions.

CHAPTER XI.

RUNNING BROOKS.

EW of us who have fed in youth upon stories of adventure and discovery have been without an early ambition to distinguish ourselves as travellers. Not knowing that Bruce was looked upon as a dangerous romancer, and forgetting that Mungo Park perished in the desert, no man can tell how, we have most of us laid down the well-thumbed records of their wanderings with a youthful yearning that nothing but a good tramp could satisfy. In this half-gipsy, sea-going, harness-breaking frame of mind, we have regarded every muddy fish-pond as an undiscovered, mysterious lake, and every slow-creeping rivulet as an untraced Nile. Then, as each summer's Saturday came round—the blessed Saturdays on which the school-doors had no power to hem us in, and even the

stern schoolmaster looked and spoke like some other man—we have sallied forth with a bundle of cold meat and bread, a top-string, leaded at the end, to use as a plummet; a faithful, blinking, idiotic-looking dog, whose red tongue lolled out, to the horror of passing old gentlemen; and a sixpenny compass bought at a toy-shop, which shook like a mountain of calves'-foot jelly. Turning our backs upon the spreading claws of bricks and mortar, we have sought for wonders, and have met them more than half way. We have magnified the road-side rat-hole into a grotto of Antiparos; we have seen in the sunburnt haymaker a friendly but untutored savage; and having devoured our bread and meat before we got a mile upon our journey, we have cheerfully cast ourselves on the world with a belief in the bounty of Nature. Glancing occasionally at our tremulous compass, out of respect to our book-knowledge, we have yet guided our steps by the rules of eye, of fancy, and of touch. We have struggled through prickly hedges, staggered over ploughed fields, trespassed upon private property in defiance of surly bulls, printed notices, and all the terrors of horse-whips and law, and by the time that the sun was high in the heavens, we have begun to feel the pangs of thirst. From that point of our wanderings everything became coloured by the hope of finding water. If we turned to the right or left, it was with the desire to discover a brook; and if we went to the top of a hillock, and took a sweeping view of the country, it was with a desire to sight some barn or village where we could beg a cup of drink. In these straits, our dog was an intelligent and useful companion, and when our mouths began to feel as if they were full of paste, and we had tried the plan of sucking a pebble to find it a mockery and a snare, this faithful animal led us, like blind men, down into a valley, where a clear stream, running over a gravelly bed, and half filled with islands of green water-cresses, was waiting for our refreshment. Without stopping for a benediction, we were instantly down on our faces, with our mouths sucking in the water, our hands scooping it up, and even our caps employed as water-pouches. We were not checked by any fear of chilling our young blood, or by any theory that enough is as good as a feast. We drank our three times three in that reclining position, and seemed loth to leave the fountain that had comforted us in our need. By proposing to trace the friendly stream to its final outlet in some river, we appeared to repay the favour we had received, while we turned our wandering tastes into something like a useful direction.

In our gipsy-like journeys of this kind—and they were doubtless many and frequent—we often reversed this process, and starting on

the banks of a river, a streamlet, or even a canal, we found a delight in following it upwards to its source. Then the top-string plummet came into repeated, but not very clearly defined, usage; and the dog was sent into the water so often after pieces of wood, that he came out at last like a sleek seal, and almost shook himself to pieces to get rid of the moisture. If he stood for a moment on any spot, he made it look like a puddly street on a wet day, and we avoided him as an overcharged living sponge, ready to give off a shower at any instant.

In one of those boyish water-course journeys, undertaken in direct imitation of Mr Bruce, the Abyssinian traveller, I remember dabbling, wading, and raking with some companions in a small, shallow streamlet, like a ditch, some few miles out of London, when we were addressed by a pleasant middle-aged gentleman in clerical costume.

'Young gentlemen,' he said, with an air of melancholy, 'I think you would treat that rivulet with a little more respect, if some one told you its history.'

'We were only hunting a rat, sir,' we replied, somewhat abashed, and thinking that, perhaps, he might be the owner of the property.

'You are now standing,' he continued, speaking at us rather than to us, 'in the famous Tyburn Brook, which once flowed from Hampstead, by many channels, into the Thames, and which was one of the earliest principal fountains that supplied your City ancestors with water.'

'Indeed, sir,' we said, respectfully but incredulously, 'was it older than the New River?'

We asked this question because we knew something about the New River, and had heard much about its extreme age.

'It supplied conduits,' he returned, 'centuries before the New River was thought of, and deserves better treatment than it now gets as the "King's Scholars' Pond" main sewer.'

'Did it give the water for nothing?' asked one of my companions, who had a natural aptitude for figures.

'It supplied it for nothing,' he replied, 'as all streams and wells do, up to a certain point. Nature is bountiful, but uncertain; art is exacting, but reliable. Some people left money to establish conduit-pipes, and maintain them as a charity; others erected these structures, and paid themselves by a recognized toll.'

This unexpected lesson in the fields carried us back, in imagination, to our hateful school, and sounded very much like the Rev. Mr Blair's instructions in English composition. It was accepted in all

politeness, and forgotten immediately by my arithmetical companion, but it made a lasting impression upon me. I dreamed of strange figures pouring out water day and night into the tankards of water-carriers; some like venerable giants with inverted pitchers under their arms; others like accommodating lions worked as pumps, with their tails for handles, and their mouths for spouts. I was not easy till I had searched the history of our London water supply in my school over-time; and I found the study, like all studies which we select for ourselves, far more agreeable than otherwise.

CHAPTER XII.

OLD FOUNTAINS.

'ANCIENTLY, until the Conqueror's time,' says old Stow, the best of all London historians, 'and for two hundred years after, the Citie of London was watered (beside the famous river of the Thames on the south part) with the river of Wels, as it was then called, on the west; with water called Walbrooke, running through the midst of the Citie into the river Thames, serving the heart thereof; and with a fourth water or Boorne, which ran within the Citie through Langbourne Ward, watering that part in the east. In the west was also another great water, called Oldborne.'

Langbourne Ward has taken its name from a long bourne of sweet water, which formerly broke out in the fens about Fenchurch Street, ran down that street along Lombard Street to the west end of St Mary Woolnoth's Church, where, turning south, and breaking into small shares, rills, or streams, it left the name of Shareborne Lane implanted in the City.

'There were three principal fountains * or wels,' continues Stow, in the other suburbs: to wit, Holywell, Clement's Well, and Clerke's Well. Neare unto this last fountaine were divers others wells: to wit, Skinner's Well, Fag's Well, Tode Well, Loder's Well, and

* There are now eighty-five charitable drinking fountains erected in London, and used daily by a quarter of a million of people.

Radwell.' The Clerk's Well, as we have before stated, has been dry for many years—an unsightly ruin of bricks and mud; and now even the iron tablet which marked its site has been taken away by the authorities of Clerkenwell. It stood in Ray Street, near the Sessions House, and near where the underground railway is now passing. If the waters of this well had been in existence, there is every prospect that this new undertaking would have drawn them off, as a clause in the Act of Parliament provides that the railway company shall compensate all parishes for the destruction of any wells which they may pass through.

In West Smithfield, in the old days, there was a pool called Horsepool, and another near to the parish church of St Giles's, Cripplegate, besides many smaller springs and wells throughout the City.

When the streams and wells became partially dried up or exhausted, in the course of time, and the number of citizens, as our historian phrases it, 'mightily increased,' they were forced to seek for waters at some little distance.

'The first cisterne of lead,' continues Stow, 'castellated with stone in the city of London, was called the great conduit, in Westcheap, which was begun to be builded in the yeare 1235.' The water was brought from Paddington, and, according to Mr Matthews, in his 'Hydraulia,' it was the first known attempt to supply London with water by means of leaden pipes. Though the execution of the Westcheap conduit scheme was commenced in 1235, the following year another transaction took place, which displays the great attention bestowed upon the supply of water at that period. It was recorded that some merchants of Amiens, Nele, and Corby, being solicitous to obtain the privilege of landing and housing wood, etc., actually purchased it from the Lord Mayor and citizens for the consideration of a yearly payment of fifty marks, and the donation of one hundred pounds towards the expense of the operations then going on for conveying water from 'Tyborne' to the City. This important undertaking originated in a grant from Gilbert de Sandford to the corporation, enabling them, with the assistance of the citizens, to lay down a leaden pipe from six fountains or wells at Tybourne. It is doubtful how far the pipe extended towards the City. Stow says, 'In 1432 Tybourne water was laid into the Standard, Cheapside, at the expense of Sir John Wells, mayor; and likewise in 1438, by another lord mayor, Sir William Eastfield, from Tybourne to Fleet Street and Aldermanbury.'

The Tybourne Brook, which had a large share in furnishing these town water supplies, is now, as my teacher in the fields told me, the King's Scholars' Pond sewer, which we have lately been surveying.

This sewer, according to Mr Cunningham, takes its name from a pond which once stood on the borders of the river a little below Chelsea. Before it became a main sewer it was a brook or bourne called Tybourne, also Ay-brook, and Eye-brook, and famous for giving a title to the village of Tyburn. The brook had its source at West End, Hampstead, and, after receiving many tributary streamlets, it ran due south across Oxford Street, near Stratford Place, by Lower Brook Street and Hay Hill, through Lansdowne Gardens, down Half Moon Street, and through the hollow of Piccadilly into the Green Park. There it expanded into a large pond, from whence it ran past the present Buckingham Palace in three distinct branches into the Thames. Rosamond's Pond in St James's Park, filled up in 1770, was partly supplied by its waters. When Tyburn Church was rebuilt, it was dedicated to the Virgin, by the name of St Mary-le-bourne, because it stood on the borders of the stream; and hence we get the present corrupted names of Marylebone, Marrowbone, and Marie-la-bonne.

Though the conduits were supplied freely by these country brooks, the public had not free access to all the conduits. One citizen, a wax-chandler in Fleet Street, who had secretly pierced a conduit within the ground in 1479, and so conveyed the water into his cellar, was tried and convicted, and condemned to ride through the city with a conduit upon his head.

The rules and regulations concerning the conduits, with the prices of water, are preserved for us in some old Ludgate parochial documents, quoted by Malcolm: 'January, 1585, it was agreed in vestry that there shall be three water-bearers and no more, and they all to be men, and not any of their wives nor servants; and they shall deliver seven tankards of water, winter and summer (so that the tankards be six gallons apiece), for twopence [our water now costs about a farthing for the same quantity]; and that they shall carry no water to any person dwelling out of the parish; and also that if any of them set out any tub or tubs (as heretofore they have done) to the annoyance of the street, every such person shall be disabled and debarred to carry any water from the conduit. . . . Also, it is ordered and agreed by a vestry holden the 12th day of January, in the thirtieth year of our Sovereign Lady Queen Elizabeth, that no manner of servant,

nor no water-bearer, shall be at the conduit in the service-time, nor leave there no tankard nor pail; for, if they do so offend, the churchwardens shall take the said tankard or pails, and keep them, until such time that the said offenders do come and put into the poorman's chest fourpence, and then the said party to have his tankard again.' Some citizens, shut out from the conduits, supplied themselves from the Thames, and even stopped up the lanes leading to the river, suffering none to pass without paying toll. These encroachments were at last checked by complaints to the mayor and aldermen.

The task of inspecting the conduits, confided to the Lord Mayor and Corporation, was, of course, converted into an annual festival—a procession of civic officers, with the ladies following in waggons. 'These conduits,' says Stow, 'used to be in former times yearly visited; but particularly on the 18th of September, 1562, the Lord Maior Harper, aldermen, and many worshipful persons, and divers masters and wardens of the twelve companies, rid to the conduit's head, for to see them after the old custom. And afore dinner they hunted the hare and killed her, and thence to dinner at the head of the conduit. There was good number entertained with good cheer by the chamberlain; and after dinner they went to hunting the fox. There was a great cry for a mile, and at length the hounds killed him at the end of St Giles's. Great hallowing at his death, and blowing of hornes; and thence the lord maior, with all his company, rode through London to his place in Lombard-street.'

The principal places, or conduit heads, from which the water flowed to the conduits, were Conduit Head, which now forms the site of Conduit Street, New Bond Street, and several of the adjoining streets, Tyburn, Paddington, White Conduit Fields, Highbury Barn, and Hackney. The spring in White Conduit Fields was destroyed by the Regent's Canal Tunnel, which passes under the New River at Islington and Pentonville. The place where the hunting-party dined, on the occasion of visiting the conduits, was the Lord Mayor's Banqueting House, then situated on a part of the site at present occupied by Stratford Place, Oxford Street, where a bridge crossed the Tyburn rivulet as it ran through to Tothill Fields. Nine conduits were erected near this bridge in 1238 for supplying the City with water.

These, and many other conduits, failed to satisfy the power of suction existing in the spreading City, and an Act of Parliament was obtained by the corporation in 1544, empowering them to bring more water from Hampstead Heath, Marylebone, Hackney, and Muswell

Hill. Fifty years elapsed before the objects of this Act were fairly realized; but still this was the foundation of the earliest known water company in London. The works and privileges were regularly transferred to a company called the Hampstead Water Company in 1692.

The art of supplying water to towns was in a very rude state until the appearance of Peter Morice, a Dutchman, in 1582, who laid the foundations of the old London Bridge Water Works. He threw water over St Magnus's steeple, much to the astonishment of the corporation and citizens, who assembled in great crowds to observe the novel experiment; and he was the first man who largely supplied the City with Thames water forced 'into men's houses' through leaden pipes. 'All the contrivances of the Romans,' says Mr Matthews, 'as well as those previously adopted for supplying London, had evidently been formed upon the simple and well-known principle, that water will flow by its natural gravity along any channel that has the slightest inclination downwards. The purpose of Morice's machinery, however, was to impel the water in an ascending direction, and thus supply places much higher than its usual level. . . . . Although no particular description is given of the means he employed to effect this object, it will be obvious that the use of the forcing-pump accomplished it. This pump was applied to fire-engines in 1663.'

Before and after Peter Morice there were many ingenious inventors and daring projectors, but none who succeeded in making their mark upon London like Master Hugh Myddleton.

CHAPTER XIII.

A GREAT PROJECTOR.

JUDGING from what human nature is, and always has been, there must have been much about Master Hugh Myddleton in common with Mr George Hudson. What the latter did for the extension of railways—what the energetic and unscrupulous Mr Winsor did for the introduction of gas-lighting—the old Elizabethan speculator did for an improved London water supply. There is a general family likeness amongst all

such projectors. They are sanguine men, who leap before they look, and who insist upon making their public leap with them. Their digestion is good; their mental and bodily activity is great, and they give themselves up, for the time, to one idea. They see an endless fountain of wealth, where others can discern nothing but stones and brambles, and they are blind to the many wrecks that strew the coast along which they love to sail. No enterprise which has marked a great stage in the world's progress was ever carried out without the aid of such men, or without a sacrifice on the part of their followers. Time generally softens those angles in the conduct of such projectors which stand out in disagreeable sharpness before contemporaries, and brings a tardy reward to a later generation, whose task it is to gather what others have sown.

The New River project in 1607 was, without doubt, a most hazardous speculation; a scheme largely forced upon the town in advance of the fair commercial demand, by a man of great self-reliance, plausibility, and energy. It was a scheme which the London corporation of the time—a body not at all wanting in public spirit—refused to carry out, although they had obtained several Acts of Parliament to enable them, if they thought proper, to bring water into the City from Hertfordshire. Although the enterprise eventually succeeded, and grew gradually, century after century, into one of the most lucrative of joint-stock undertakings, its commercial character from 1608 up to 1633 is shown to be faulty, from the fact that it paid no dividend for twenty years. The ground it slowly gained afterwards, up to and after the abolition of the conduits in 1728, has been a source of wealth and comfort to the shareholders; but the break-down of Master Hugh Myddleton's golden calculations is hardly concealed by this after success. He was opposed before he undertook the work; he was opposed during its progress; and he was doubtless taunted for years about his unsatisfactory balance-sheets. He retained a sufficient interest in the concern during its financial struggles to make him comparatively wealthy when the turn in affairs arrived—most probably because no one would come forward to purchase his shares. With singular inconsistency, his memory is cherished by many as that of a great public benefactor, while the existing water companies in general, and his legal representatives in particular, are daily and hourly abused. There is nothing in the dim fragments of his history to prove that he was particularly disinterested in his dealings, or that, beyond painting his enterprise in colours a little too glaring, he carried on his

business upon sentimental principles. If Sir Hugh Myddleton, Bart., was really regarded by his contemporaries as it is the fashion to regard him now, it is strange that no one ever stepped forward to write his biography. Before he turned a sod of his new water-channel, he obtained a strictly legal conveyance from the London corporation of all authority vested in them under their several Acts of Parliament concerning the water supply. In his dealings with water consumers, after his works were finished, and he was established, with his partners, as a water-seller, he showed no particular sentimental liberality. His bills, no doubt, were punctually delivered; and payment was promptly demanded, on a scale—to judge by specimens preserved in local records—which showed him anxious to get as much money for as little water as possible. In 1616, he granted a lease for twenty-one years to a citizen and his wife of 'a pipe or quill of half an inch bore, for the service of their yarde and kitchine, by means of tooe of the smallest swan-necked cockes, in consideration of the yearly sum of twenty-six shillings and eightpence.' The water then was accused of being muddy, and several rival schemes were put forward by rival speculators.

The work he had to do, and the difficulties he had to surmount, were, no doubt, enormous, and we may give him credit for the skill, industry, and perseverance he displayed, without investing him with purely imaginary qualities. He had to contend against the opposition of certain landed proprietors through whose grounds he wished to cut his channel, and mechanical obstacles which the slender engineering skill of the time scarcely knew how to overcome. This is how the New River came to have its chief beauty—its winding course. He had to petition the corporation for an extension of the time granted him to complete the undertaking; and this being conceded, he brought the water from the springs of Chadwell and Amwell in Hertfordshire as far as Enfield, when he discovered that his funds were exhausted. He again applied to the corporation—this time to induce them to take a pecuniary interest in the concern, or to grant him a loan. Both requests were refused, on account of the great cost of the enterprise, and the uncertainty of its profitable results. In his extremity he applied to King James the First, and succeeded in inducing him to take a half-share in the business, upon condition that the king should pay all the cost of that portion of the work which then remained unexecuted. The firm from that hour became practically Myddleton and James; and they opened as dealers in water, when the New River

entered the reservoir now called the New River Head, in the parish of Clerkenwell, with much music and rejoicing, feasting, processions, and reciting of poems, on the 29th of September, 1613.

Thus was finished one of the most beautiful of artificial rivers; a winding channel forty-eight miles in length, thirty feet deep in many places, spanned by some eight hundred arches in stone and wood, which had employed six hundred men for more than five years. It was disposed of in underground pipes of lead and wood, 'serving the highest parts of London in their lower rooms, and lower parts of London in their higher rooms.'

CHAPTER XIV.

SUPPLY AND DEMAND.

THE New River—as the whole works are still popularly called—is no more like it was, than the fancy portrait of Master Hugh Myddleton's character is probably like the original. One of the ancient springs—the Old Amwell spring—has entirely disappeared, having oozed away silently, about 1830, into the bed of the river Lea. The Chadwell spring, that mysterious, circular, chalky pool, in the Hertfordshire valley, which has been the drinking-fountain for centuries of countless thirsty millions, no longer gives forth drink with its accustomed liberality. Springs, like men, must be allowed to grow weary with work and old age, and must submit to see younger followers rising up to supply their place. The old river channel, winding between flowers and grassy slopes, dipping under roadways, flowing past cottages, churchyards, and country taverns, has had its loops cut off, at different times, until its length has been reduced to something like twenty-eight miles, and it now only counts as one reservoir amongst many. Even the royal partnership was dissolved by Charles the First, who regranted to Sir Hugh Myddleton, then a baronet, the half-share in the undertaking, in consideration of an annual payment into the Exchequer of five hundred pounds. At this time the chartered enterprise was at very low-water mark, and the act of 'royal bounty' may have been a prudent and selfish act, produced by an application—or 'call'—on

the part of Sir Hugh for more money. The seventy-two parts into which the property is now divided, are still counted as thirty-six 'adventurers' ' and thirty-six 'kings' ' shares, and the royal annuity is still paid out of the profits apportioned to the latter. It is a curious fact that Myddleton precluded King James from taking any part in the management of the company, although he allowed a person to be present at the meetings, to prevent injustice to his royal principal. This preclusion still extends to the holders of the royal shares. Probably the great water-company projector had no faith in the business talents of kings; or he may have thought that majesty on board days would have shown itself a little too radiant 'in the chair.' The original cost of the undertaking has to be guessed, because all the documents of the company were destroyed by a fire at their office in Dorset Street, Fleet Street, in 1769. These guesses have varied from five hundred thousand to one hundred thousand pounds sterling; an estimate of one hundred and fifty thousand pounds being, perhaps, nearest to the mark.

The New River Company still holds the first place in the present water system of London. Its sources of supply are the old Chadwell spring, before alluded to; four Artesian wells sunk at Amwell, Cheshunt, Hampstead Road, and Hampstead Heath; the Cheshunt reservoirs; seven ponds at Highgate, and seven ponds at Hampstead, from which an unfiltered supply is drawn by a separate system of mains for street-watering and like purposes; and the river Lea at Hertford, which now feeds it with the greatest proportion of the water it conveys through London. Its reservoirs, to maintain a stock in hand, are very large and numerous. There are the store and settling reservoirs, consisting of the old river channel, twenty-eight miles long, and perhaps about five yards broad, which has a capacity to store about one hundred and seventeen millions of gallons, or about a day's supply for all London; two reservoirs at Cheshunt, which can store about seventy-five and a half millions of gallons; another reservoir at Hornsey, capable of holding thirty-nine millions of gallons; two more at Stoke Newington, formed in 1833, capable of holding one hundred and thirty millions of gallons; and the ancient 'round pond'—the one original reservoir—at the New River head, which contains at least two millions one hundred and sixty-two thousand gallons.

The reservoirs at Stoke Newington are like two vast inland lakes, and their stone-piled borders look like a rocky sea-shore. The engine-

house is built to resemble a fortress, and the water, instead of being pumped up pipes that are like gigantic upright trombones, to reach an artificial level, and so supply a point several hundred feet higher than the reservoirs, is forced by the most fearful-looking Cornish engines ever made up into a turret of a watch-tower. Everything has been done to make the artificial look as picturesque as possible; but still the old river channel at the side, with its grassy banks, its overhanging willows, its patient anglers, and the accumulated sentiment of two centuries and a half, is the stream that flows the most readily into our hearts. There is as much difference between the two, as between an ancient footway across the fields, worn into breadth and distinctness by the footsteps of generation after generation, and a new straight thoroughfare, plastered on each side with stucco, full of right angles, and stamped at every corner with traces of the compass and the rule.

The New River Company, which now includes the old London Bridge Water Company and the older Hampstead Water Company, has eight more store reservoirs for filtered water at different parts of its works, capable of storing about twenty-three and a half millions of gallons. All these reservoirs are covered, with the exception of one at Hornsey, which is exempted on account of its distance from town. The Company has eleven filtering beds—three at Hornsey, five at Stoke Newington, and three at the New River Head—possessing a joint sand area of nine and a half acres, and being capable of storing eleven millions one hundred and sixty-three thousand gallons. The filtering medium is five feet in thickness, two of which consist of sand, and the rest of gravel in layers increasing in coarseness towards the bottom. Besides these store chambers, it has further storage for water supplied for purposes not requiring filtration, in thirteen ponds, before alluded to, at Hampstead and Highgate, which hold about sixty-seven millions of gallons, and one reservoir at Camden Square which holds about two millions of gallons. Summed up roughly, this storage amounts to forty-one reservoirs, counting the river channel as one, having together an area of two hundred and fifteen acres, and holding four hundred and sixty-seven millions of gallons, or water equal to supply the Company's district for eighteen days.

There are ten engine-stations at different points of the works, having eighteen engines, possessing together about sixteen hundred horses' power; of which one thousand is at the Green Lanes pumping-station—the castle just described. Besides this, there are several

large water-wheels; and the engines and wheels are arranged for the working of fifty-one pumps.

The daily* delivery of water by this machinery is now about twenty-five millions of gallons—nearly one-third of the London water supply—or something like nine thousand millions of gallons annually. Of this yearly quantity, three hundred and fifty millions of gallons are consumed by trades; forty-five millions and a half gallons for flushing sewers, and other sanitary purposes; fifteen millions of gallons for fires; ninety millions of gallons for street watering; and about eight thousand five hundred millions of gallons for domestic service.

The Company's town district has an area of about seventeen square miles; about one hundred and eight thousand houses are supplied; and the highest point to which the water is sent is at Hampstead—four hundred and fifty-four feet above Trinity high-water mark. No water is now drawn from the Thames by this company.

The distribution of this endless stream is made by about six hundred miles of cast-iron pipes, varying in diameter from four feet to three inches; and the tenants' communication lead pipes, which branch out from the mains, must have a joint length of at least fifteen hundred miles. To these underground tubes we must now add about a mile of broad iron tunnel, which has sucked up the New River channel from Sadler's Wells Theatre to the Lower Road, Islington, burying it from the public gaze as an extinct town river, after an honoured existence of two hundred and fifty years.

In all these iron pipes there are about four thousand five hundred sluice-cocks, of diameters varying from three inches to four feet; and about eleven thousand fire-plugs, which have been fixed and are maintained at the Company's cost. Water is annually supplied gratuitously to more than a thousand fires, and about one hundred pounds is annually paid by the Company in rewards to persons who are first to call turncocks to fires. The capital of this enterprise is now nearly two millions and a half sterling, and it gives employment to at least three hundred men.

One water company scarcely differs from another except in the extent of its operations; and the details given respecting the New River and its modern works must be nearly the same in all water-supplying enterprises. On the north side of the Thames, the com-

* The phrase 'daily' concerning all the water companies' supplies, means six days a week. The Sunday supply is always much smaller.

pany that stands next in importance to the New River is the East London, established in 1807, at Old Ford. It represents a capital of one million sterling, and it supplies eighty thousand houses daily with about seventeen millions of gallons of water. Its source of supply is the river Lea, above Tottenham, and its total length of mains and branches may be estimated at about three hundred and eighty miles.

The West Middlesex Waterworks comes next, established in 1806, and its source of supply is now the Thames at Hampton, in Middlesex. Its capital is about seven hundred thousand pounds, and it supplies thirty thousand nine hundred and fifty-two houses with about seven and a half millions of gallons daily. The total length of mains and services for the distribution of this water is two hundred and four miles.

The Chelsea Waterworks, another north side enterprise, was started in 1724, and it now supplies twenty-seven thousand houses with about eight millions and a half of gallons of water every day, drawn from the Thames, at Seething, near Thames Ditton. Its mains and branches are estimated at about two hundred miles, and its present capital is nearly one million sterling.

The Grand Junction Company—the last on the north-side list—was born in 1798, and its source of supply, originally the Grand Junction Canal, which drew the waters from the rivers Colne and Brent, is now the Thames at Hampton. It distributes about seven millions and a half gallons daily to about eighteen thousand houses; and its capital is nearly three-quarters of a million sterling. The length of its main pipeage is estimated at two hundred and ten miles.

The south side of the river Thames is now provided with three water companies, making, with the five on the north side, eight in all. The Southwark and Vauxhall Company stands first, by reason of its importance. It was started in 1822, and supplies a district originally satisfied by an ancient pond at St Mary Overies, in Southwark. Its source of supply is the river Thames, at Hampton, and it furnishes ten millions and a half gallons daily, to about forty-two thousand houses. Its capital may be set down as about six hundred and fifty thousand pounds; and its mains and branches are estimated at five hundred and sixty-five miles.

The Lambeth Water Company was founded in 1785, and its capital is now about six hundred and eighty thousand pounds. It supplies thirty-three thousand houses with about seven millions of gallons daily, drawn from the river Thames between Kingston and Thames

Ditton. The total length of the Company's main pipes is now two hundred and sixty miles.

Lastly comes the Kent Waterworks, which dates its origin from 1699, and which now includes the Plumstead Company. Its source of supply was originally the river Ravensbourne, but this has been abandoned, and the water is now drawn from Artesian wells. Its capital is three hundred and ten thousand pounds sterling; it supplies twenty-six thousand houses with four and a half millions of gallons daily; and its main pipes are one hundred and sixty-seven miles long. The Plumstead Waterworks, recently purchased by this Company, represent a capital of fifty thousand pounds, sixteen miles of main pipes, and a supply of about half a million of gallons a day, drawn from wells in the chalk, to three thousand houses.

These figures and details, which I have taken great pains to collect from the companies themselves, show that the present water supply of London, by the eight existing waterworks, is about eighty-eight millions of gallons daily, sent through about two thousand five hundred and thirty miles of underground main pipes, all changed from wood to iron since 1810. This supply, which consumes a lake every day of sixty acres, six feet deep, flows into some three hundred and sixty-eight thousand houses and tenements,* through about six thousand miles of lead pipes; and the whole present capital of the water companies is seven millions six hundred and forty thousand pounds. Such a supply of water gives a daily average to each member of our metropolitan population of about thirty-one gallons—although no one really uses more than six gallons a day—at an average cost of about five per cent. on the house rental.

It is surely something, in these times, to be able to lie upon our backs, and, by touching a tap at our own sweet will, to turn a stream into our mouths from Hertfordshire or the other end of Middlesex. The ingenious and powerful mechanism that has helped us to do this is something to be proud of amongst the many wonders of universal trade. If this machinery were to break down, if the sources of supply were to fail, and there was no inducement for keen trading companies to find out fresh fountains in the fruitful earth, our population could not advance another step, and we should wither from the face of the earth. We lie down at night with no misgivings on this head, and we rise in the morning with a full faith that the globe will never be sucked as dry as an exhausted orange. We feel that we are fed by

* Inhabited *houses* (Census, 1861) in London, 362,890.

that beautiful law of supply and demand, which can hurl down mountains, or can make a pin; which never fails, except when tinkered full of holes by meddling legislators; and which came from the same Divine will that sends the planets on their course.

CHAPTER XV.

SPIRITUAL MANIFESTATIONS.

EXTRAORDINARY medicinal springs have been discovered in various places at different times, and have been duly subjected to chemical analysis. Science has declared some to be alkaline, chalybeate, or saline, and others to be either carbonated, or flavoured with sulphur. Fashion, rallying round one or other of these springs, has caused 'spas' to be built, and has converted quiet inland villages, or obscure London outskirts, into popular watering-places. Fashion, again, either recovered from temporary indisposition, or drawn off by mysterious influence to the worship of new gods, has basely and gradually deserted these places, after raising them into short-lived importance. What has become of St Chad's Well in the parish of St Pancras, and of that metropolitan Cheltenham in the High Street of Islington, where Lady Mary Wortley Montagu resorted to 'take the waters'? What trace is there now, in the neighbourhood of Sadler's Wells Theatre, of that 'New Tunbridge Wells' which Beau Nash honoured with his presence when he could be spared from Bath? A small, mangy 'Islington Green' exists, on which it is proposed to erect a statue to Sir Hugh Myddleton; and a few trees cast their cool shadows across the bonnet-shops and jewellers' windows still forming the one solitary Boulevard in London. This is all. St Chad's Well—like the old Clerk's Well—is swallowed up by the 'Underground Railway' as it passes through King's Cross; and 'New Tunbridge Wells' is smothered with the tenements of working watch-makers. However, notwithstanding all this destruction of old springs and their adjuncts, it is possible that every kind of water—even to sea-water—can be obtained in London, either in the wood, the earth, the pipe, or the

bottle. Many peculiar metropolitan waters have been found at different times, such as no country wells have ever given forth, and Whitechapel has been rendered famous by one of the most curious of these discoveries.

About twenty years ago, in the middle of a very hot summer's day, a respectably-dressed young woman was observed sitting on a doorstep in an east-end thoroughfare. Her manner was bewildered, and her speech was incoherent. A policeman coming up in the course of a few minutes, asked her where she lived, and with some little difficulty she told him 'the dishtillillery.' As there were not half-a-dozen distilleries throughout London, she was supposed to refer to an establishment of the kind in the neighbourhood, and thither she was conducted with as little delay as possible. She was at once recognized and admitted as Mary the housemaid.

There were several theories with regard to the condition of this housemaid. Charitable people traced it to the heat of the weather; uncharitable people traced it to residence at a distillery. The popular idea was, that in such a place there must be as much gin as water, and that the servants had unchecked liberty to draw either liquor. Some thought it was a pity that steady young women should be thrown in the way of so much temptation; others wished they had the young woman's unlimited control over a spirit tap. Of course the young woman's story, that she had tasted nothing but water, was received with incredulity. Even when she admitted that she had drunk rather freely of the simple fluid, in consequence of the heat of the weather, the incredulity was not lessened. This was one result of living at a distillery.

A few weeks after this occurrence, still in one of the hottest of the summer months, two more of the distiller's female servants were taken unwell. Their illness showed itself chiefly in a tendency to dance and sing songs in a defiant manner, and a disinclination for work. According to their own account, they had tasted nothing but a can of water, and, of course, no one who looked at them believed such a barefaced assertion. Certain symptoms of drunkenness are not easily mistaken, especially when they appear in persons employed at a distillery. The young women were doctored with strong tea, soda-water, and other well-known restoratives, and some care was taken to conceal their indisposition from their employer. This gentleman, however, became aware of the 'accident,' as it was called, and very generously took no notice of it. Perhaps, as a distiller, he could hardly object to

a little drunkenness, even when it appeared in his own establishment; at least, some of his enemies said as much.

Those who know what a distillery is, could not very reasonably suppose that servants employed in the dwelling-house attached had easier access to the wells of spirit than any stranger passing the outer gate. As the Government has a direct interest in every half-pint of whisky distilled from malt (pure spirit distilled from malt is called whisky), the excisemen have really more control over the premises than the master. These 'officers of inland revenue,' as they now style themselves, lock up vats, out-buildings, vaults, and coppers, with patent locks, signed and sealed; and the proprietor of the works can only look at his property with the consent of one of these officers. Baths of fiery spirit may be floating underneath the yard or the dwelling-house, but no one can dip a bucket into them, except in the presence of an exciseman. So, those who reflected upon these facts were disposed to be charitable towards the female servants of the distiller.

Nothing more was thought about the matter for some weeks, until a new groom, belonging to the distillery, was heard telling a curious story concerning one of the horses in the stable.

'I giv' 'er 'er feed,' he said, 'a quartern an' a 'arf an' three-pen'orth, which she took as usual; but when I tried 'er with the water, she shied at it. I thought p'raps the water was dirty, so I empties the pail in the yard, an' fills it agen fresh from the same tap, but when I offered it to 'er she threw up 'er 'ead, an' shook all over.'

'What did you do then?' asked one of his listeners, an in-door man-servant, who waited at table.

'What did I do?' returned the ostler, almost contemptuously, 'why, tastes the stuff, o' course, an' finds it as good cold whisky-an'-water as I ever put my lips to.'

This extraordinary story came to the ears of the master, and the water-tap, which stood in the distillery-yard, was openly examined before all the servants. Water was drawn in tumblers, mugs, and pails, and tasted by all present. No one could detect the slightest flavour of spirit in the liquid, and the ostler, by common consent, was laughed at as a dreamer. He adhered to his story, but his tone was less confident than it had been before the experiment.

A few more weeks passed by, and the story of the temperate horse, who got nicknamed 'Father Mathew,' began to fade away. Even the excisemen, who were always about the place, although not wel-

comed as members of the family, and who had taken a strong interest in the groom's narrative, ceased to talk about it. As the weather got much colder, no more mysterious cases of water-intoxication were heard of among the females of the household, and the establishment became as quiet and well-conducted as the establishments of a dean and chapter in a cathedral city.

Soon after Christmas, however, when the weather was very severe, this calm was broken by a discovery. A spring of water, possessing peculiar properties, suddenly bubbled up in the middle of a public highway in Whitechapel. It was not a saline spring, nor an alkaline spring, nor was it flavoured with sulphur. It was not tested by any people more scientific than a knot of cabmen, boys, and East-end idlers; but one of these bystanders—no mean authority on a question of ardent spirits—boldly pronounced the spring to be 'some kind of gin.' A fountain of gin spouting up in the middle of the roadway was such a remarkable fact, that no one present could believe it without tasting the liquor. A few hesitated to try the drink, more from fear than from holding temperate opinions; but when a score or two had drunk, and had loudly agreed with the opinion of the first taster, a general scramble for the precious water took place. The mob increased very rapidly, and several wiry boys who had glided in between the men and women, and had taken a fair share of the mysterious fountain, began to show symptoms of youthful intoxication. A few policemen came on the ground, but were unable to dispel the crowd, or account for the mystery. Some few drinkers suggested that charity had something to do with the spring, and that spirits-and-water were being unostentatiously supplied by a friend of the people. This suggestion was rather favourably received, and the health of the unknown benefactor was noisily drank by the mob, who seemed inclined to take all that the fountain could yield. The policemen had no rule to guide them in such an unexpected emergency, and they only formed part of the mob. Never, since the days when the old water-conduits ran wine on high festivals, was such a scene witnessed in a public thoroughfare.

In the present state of the law and the national finance, it is impossible to cut the connection between excisemen and ardent spirits. Wherever one is seen, the other is sure not to be far off: the spirits following the man, or the man following the spirits. The street-fountain of what turned out to be whisky-and-water was soon taken into custody by a body of inland revenue officers, who had more

experience in such matters than the astonished policemen. They tasted the running liquid, and at once began to trace it to its source, unchecked by any theories about remarkable springs. A broken pipe of a well-known East-end water company was the first thing discovered; and this pipe—burst by the frost—was traced at one end into the distillery where the female servants had made themselves 'ill' with 'water.' The other end of this pipe was also traced, through a long distance, into another distillery, where it may possibly have conveyed whisky underground, without the knowledge of the excisemen, and without volunteering an account to Government. This pipe was ostensibly a private branch water-main, laid down by the two distillers (who happened to be brothers) to supply their works with water, and no one was more astonished to find the pipe filled with cold 'grog' than the suspected manufacturers. One or two scientific men stepped forward in their defence, and discoursed about peculiar waters, and remarkable springs, and several other theories, in explanation of the spiritual manifestations. The Government, however, were not to be satisfied without a trial in a court of law; and a jury, after patiently hearing the case, inflicted a fine of seventy-five thousand pounds sterling on the two distillers. The sobriety of the maid-servants was incidentally vindicated; the ostler was relieved from the suspicion of being a madman; the excisemen were rewarded; the public revenue was benefited; and Whitechapel, in being deprived of a peculiar spring which might have converted it into a 'spa,' was doubtless the only actual loser.

CHAPTER XVI.

THE GENII OF THE LAMPS.

THERE has been little rest during the present century for underground London. Some road has always been 'up' that pipes may be laid down, or tunnels may be constructed. When sewers were not being built, in 1812, the water companies were changing their rotten wooden mains for iron pipes that would bear the pressure necessary for serving their hill customers. Side by side with the workmen of the water companies, were other

workmen employed by the then infant gas interest. Coming down to our own days, we have railway tunnels, building or projected, and telegraphic wire-pipes, and 'pneumatic despatch' tubes struggling for the few spare feet of underground roadway. Many of our social scientific contrivances in London evidently follow the law of gravitation, and tend towards the centre. It would be easy for some Oriental traveller to turn our Chinese population fables against ourselves, and to show that we have grown too numerous to live upon the surface. By a stretch of fancy, not at all beyond the powers of descriptive travellers, it could be shown that if another man were placed upon this island, he must necessarily drop off into the sea for want of standing-room.

It would have been a sight worth seeing—a picture worth drawing—the first laying of a gas-pipe in London. The landing of Julius Cæsar, the signing of *Magna Charta*, and the death of Harold, furnish more romantic groupings for historical painters; but no one can say that they were of more historical importance. Civilization took a vast stride on that eventful occasion—the living out-door life of man was lengthened more than one half; and yet no one was present to give the great work a pictorial record. The Battle of Waterloo was a mere puff of smoke in comparison, for all its deposit of pictures, statues, and treaties.

Of course the workmen were obedient, but sceptical. I can imagine them being very much like the attendant on the alchemists in Teniers's sketch, who holds the crucible over the fire, in the attempt to produce gold, as if it were a vulgar frying-pan, half-full of sausages. It is easy to call such people louts, and to judge them by what we know now, rather than by what was known then; but such louts represent a very wholesome degree of scepticism. For one discovery that has lived through the practical test of application, and has really benefited the world, a thousand have been the pet children of quacks and visionaries. Until the new comer makes good its claim to be considered something beyond the common herd, we save our time, our money, and our labour by regarding it cautiously.

The discoverers of gas-lighting had no more than ordinary difficulties to contend with in applying their discovery, and it is fortunate for them that they did not appear three centuries earlier. I am not speaking of Mr Thomas Shirley, whose 'description of a well and earth in Lancashire taking fire by a candle approached to it,' in 1667,*

* Philosophical Transactions.

is the first known English account of inflammable coal-gas; nor of Dr John Clayton's accidental discovery of the same fact a few years later, when he constructed the first gas-holder, by inclosing the gas in a bladder; nor of Dr Richard Watson, who experimented on the same gas in various ways in 1767. I am thinking of Mr Spedding, who was the first to apply coal-gas escaping from a mine to any economical purpose, by lighting his office at Whitehaven with it about the same period (1767), and who made a proposition to the magistrates to light the town in the same manner. His proposal was simply refused, and little more was said; but had Mr Spedding lived in the fifteenth instead of the eighteenth century, he would most probably have been tortured as a wizard. Mr Murdock, the first recorded applier of artificially manufactured gas to house-lighting purposes, who began to use it in Cornwall in 1792, and who seems to have partly purified it from smell and smoke, while lighting Messrs Boulton and Watt's factory at Birmingham with it, in 1798, was another gentleman who had cause to be thankful to the age he lived in. His illuminations at Birmingham in 1802 would have carried him to the martyr's stake in the bad old days; and his successor, Mr Winsor, would have been nipped in the bud.

Much abuse has been lavished upon poor Mr Winsor, because he was not a sound scientific man, and because he was energetic and unscrupulous in carrying out his plans. His science was sufficient to teach him what he had to deal with; and he was the first man to light a London street with gas, and the first to make gas-lighting a branch of commerce. He publicly exhibited his plan of illumination at the Lyceum Theatre in 1803 and 1804; and he lighted up one side of Pall Mall in 1807. His rude lighting was as much an advance upon the old oil-lamps, as those lamps were an improvement upon the old lighting system existing in 1716, when each householder, whose premises fronted any street, lane, or passage, was required to hang out one or more lights every dark night, to burn from six to eleven o'clock, under the penalty of one shilling. His commercial scheme took the form of a National Light and Heat Company, of very extravagant expectations; but it merged at last into the Gaslight and Coke Company, commonly called the Chartered Gas Company, which worked nobly for many years as a pioneer in gas-lighting, without the refreshing taste of a dividend. Few persons, perhaps, who were unlike Mr Winsor, could have done what he did in the face of so much opposition, grounded on caution and prejudice. While scientific

men were playing with the new element in various ways, he helped to mould it into the basis of a business corporation, and this by unflinching perseverance, devotion to one idea, an absence of sensitiveness, and great oddity of character. Whatever his faults may have been, whatever schemes he may have originally planned for his own enrichment, he clung to his speculation through all its early struggles, and no one has ever shown that he amassed any private fortune. He deceived himself, in his imaginative estimates of profit, as much as he deceived others; and some of his pamphlets are distinguished, not only for their reckless statements, but for the strength and indignation of their tone. 'All gas-lights,' he says, 'shown and exhibited before my illuminating the large theatre in the Lyceum, early in 1804, I fairly consider as so many *Will-o'-the-wisp* lights, known for centuries past. The gas of these lights has been caught and collected in bladders, in marshy ground, the same as all *coal-gas* has hitherto been produced in bladders for philosophical amusement. The principle, that coal and other combustibles contained, among other products, a most beautiful and valuable flame, has been known by the most learned of the last century; but HOW to make the application—HOW to save and analyze—HOW to preserve and refine—HOW to conduct gas in proper air-tight tubes—HOW to introduce gas-fire and gas-lights into a drawing-room, shop, and street-lamp—HOW to cook, melt, boil, and distil by a gas-fire, either in a kitchen or dining-room—HOW to introduce coke, tar, and ammonial liquor for the advantage of a whole nation—HOW to make gas-fire and gas-lights applicable to light-houses, telegraphs, culinary purposes—in fine, HOW to save and employ all the valuable parts of raw fuel with the greatest possible advantage;—all these most difficult points of my discovery were left a problem to theorists, WHO could *write*, but not *practise*—WHO could fill bladders from retorts, tobacco-pipes, pots, pans, and gun-barrels, with raw smoke, but could not illuminate—WHOSE delicate hands and noses would have shrunk with horror from my numerous dirty and laborious experiments in kitchens and wash-houses, where my own labourers complained of being suffocated, and often refused to assist me, until I shamed them by the example of *stripping* to perform what they thought was too dirty work for them.

'Animated by the life and example of *Peter the Great*, emperor of all the Russias, who performed the most abject labours to teach his ministers and generals how to civilize a barbarous nation, I did no longer deem it beneath me (who had been a merchant in the City of

London) to do that work which some of my labourers, actually in want of bread, refused to do for victuals and payment.'

Mr Winsor, with all his pretence of mechanical completeness, never contemplated the erection of a gas-holder, or the storing of a reserve of gas in anything except the main pipes.

It was left for Mr Clegg, a pupil of Messrs Boulton and Watt, and the earliest permanent engineer of the Chartered Gas Company, to introduce a variety of mechanical improvements in the manufacture and distribution of gas that have fixed his name in the foremost rank of gas-engineers. In the early days of gas-lighting, the manufacture was very rude, and was long watched with fear by the public and the Government inspectors. Sir William Congreve, appointed to make a report on the state of the metropolitan gas-works in 1822, saw two large canvas bags in some works at Whitechapel, of about fifteen thousand cubic feet each, which were for some time used as gas-holders, near to a blacksmith's forge. He hints at the direful consequences which might ensue 'were the tar to be discharged and inflamed, like an emission of a large quantity of burning lava from an artificial volcano.'

Those black volcanoes, the gas-holders (originally called gasometers), are now vastly increased in size, and improved, until little is left for further alteration. When a deputation from the Royal Society, with Sir Joseph Banks at its head, visited the gas-works of the Chartered Company at Westminster in 1814, they strongly recommended Government to prevent the Company constructing gas-holders exceeding six thousand cubit feet in capacity, to be confined in very strong buildings. The largest gas-holders in London are now constructed to hold from a quarter of a million to half a million of cubic feet each, and they stand out boldly, like gigantic iron vats, towering above the walls of the gas-yards. The importance of such reservoirs, containing a night's supply of gas in advance, can hardly be overrated by any man who tries to imagine the condition of London suddenly plunged into total darkness.

The manufacture of gas, although it includes many beautiful scientific processes, is not, on the whole, a sightly operation. What is not seen may be refined and interesting; but what is seen decidedly savours of pandemonium. There are huge caverns of black coal, huge caverns of red-hot coke, and a row of roaring fiery ovens, which sooty men are constantly feeding with coal thrust in out of long iron scoops. The lids of these ovens, or retorts, are generally heated to a

white heat, and the men who lift them off and put them on have their hands protected with thick gauntlet gloves. After the coal has been distilled, as it is called, the red-hot coke is raked out, either into coke-vaults, or iron barrows. The spirit of the coal rises up black pipes, like infernal organ pipes, leading from each oven into a tube, running the whole length of the retort house, called the hydraulic main, which they reach by a curved dip-pipe. The hydraulic main, as its name implies, is half filled with water, and the end of the dip-pipe passes through this water to the depth of about four inches. The gas from the retorts flows down the dip-pipe, and bubbles up by its lightness through the water till it rests in that part of the main above the surface of the liquid, depositing its tar in its progress. The water, which gradually changes its character with this deposit, and becomes nearly all tar, locks the gas in the upper part of the main, and only suffers it to pass off through the purifiers. These purifiers, partly mechanical, partly chemical, relieve the gas from the vapours of tar, ammonia, sulphuretted hydrogen, and carbonic acid, and allow it to enter the gas-holder, or reservoir, pure enough for the ordinary purposes of lighting.

The gas-holder is cylindrical in shape, made of plate iron, covered at the top, but having no bottom. It is inverted over a cistern of water, and both the inlet and outlet pipes for the gas have their mouths above the surface of this water. When the purified gas flows in, it raises the gas-holder, and when it is pressed out into the main pipes, the holder sinks. The gas having a tendency to rise and not to flow, is always sent through the mains by a certain degree of pressure acting on its source.

The London gas supply is now furnished by thirteen gas companies, if we exclude the Brentford, Wandsworth, Crystal Palace district, and the two Woolwich companies, which light only limited portions of the metropolitan area. These thirteen companies—ten on the north side of the river and three on the south side—represent a capital of a little over five millions sterling, and their dividends, on non-preferential shares, have lately shown an average of something like seven per cent. per annum. No trading corporations have been more closely 'inspected' by Government, and, at present, the regulation of the supply of gas is held to be in the hands of the Home Secretary. 'In the year 1829,' says Mr Samuel Hughes, F.G.S., to whom I am indebted for much information on this subject, 'gas was sold in London at fifteen shillings a thousand cubic feet, and at this price it was

so impure, that I have seen test-papers, which had been preserved from that date, coloured and stained as black as ink, owing to the presence of sulphuretted hydrogen. At the present day, gas is sold in the City of London at four shillings per thousand cubic feet, without meter rent, and it is so pure that scarcely a trace of sulphuretted hydrogen can be detected in it, and the test-papers for ascertaining this impurity are rarely discoloured in the smallest degree.'

We have now, within the metropolitan area, twenty-three gas manufacturing stations, and six gas-holder stations, used solely for storing gas. The total length of mains laid down by the thirteen companies, in underground London, is seventeen hundred and fifty miles, besides about four hundred and fifty miles of branch service-pipes. The house service-pipes, in addition to this, must be at least eight thousand miles long.

The total number of London public street-lamps supplied with gas is thirty-seven thousand seven hundred and twenty-eight, the average distance from each other being seventy-five yards.

The consumption of gas now is at least double what it was ten years ago; and the annual quantity manufactured in London is about eight thousand millions of cubic feet. One-fourth of this quantity, according to reliable estimates, is lost by leakage, condensation, dishonesty, and bad debts; and at least one half of this fourth—or one thousand millions of cubic feet—escapes every year into the London street earth. Mr Spencer, the analytical chemist to the New River Company, has traced this escaped gas in its destructive action upon the four thousand seven hundred miles of metropolitan gas and water mains, until underground London appears to be one vast grave of iron rotting into plumbago. The twelve gas-mains, with their eighty joints, which lie side by side with water-mains and telegraphic-wire pipes over the sewers in Cockspur Street, Charing Cross, are not such a happy family as their appearance would lead us to suppose. They are crowded together like tramps in a threepenny bed, and there does not seem to be room for a rat to run between them, but there is no real friendship for all this shaking of hands. The defective joints of the gas-mains lead to the enormous leakage just described, and the escaped gas, by its action on the street earth, destroys water-pipes in a few years that ought to last for a century. Apart from the foul condition of the London street-earth, we are all interested in saving this escaped gas, and this destroyed pipeage, for our gas-bills include the cost of the one, and our water-bills the cost of the other. While

the water-pipes are softened, and the gas penetrates the tubes, the water is also adulterated with an undrinkable mixture. I have heard of a letter addressed to a leading water company, which ran somewhat in this form :—

'Mr Blank presents his compliments to the Blank Company, and wishes to know whether they supply gas or water. Mr Blank is led to make this inquiry because one of his servants went to the cistern with a pitcher and a candle, and instead of procuring water, she blew up the roof of a wash-house.'

This is not a state of things that even poor Mr Winsor would have been proud of, and it surely cannot be considered beyond a remedy by our present intelligent Genii of the Lamps.

CHAPTER XVII.

UNDERGROUND RAILWAYS.

CERTAIN columns of the 'Times' newspaper, at the close of every year, contain the announcements of all those joint-stock companies who are prepared to apply to Parliament in the next session for power to carry out their designs. These long blocks of words are put into the smallest advertising type, are headed with the least attractive of titles, and are drawn up in the driest legal style of English composition. There is nothing in their form or preamble to induce a general reader to examine their contents; and the result is, that projects more revolutionary in their effects upon persons and places than an Indian rebellion or a Parisian riot, are able to give that 'preliminary notice' of their birth which is required by parliamentary regulations, without disturbing even the timidest and oldest inhabitant amongst us. Whole parishes are threatened with demolition, venerable churches and landmarks are to be elbowed on one side, half-buried monuments of antiquity are to be ploughed up, like the decayed stump of an old tooth, ground into powder, and scattered to the four winds; the ancient ways upon which our forefathers stood, made bargains,

drank, feasted, and trained their children, are to be deserted, closed, built upon, transformed, or utterly destroyed; grand, gloomy stacks of time-honoured mansions—the traditional abode of kings—the known dwelling-places of old London's merchant-princes—are to be plastered over with the bills of some authorized auctioneer, to be sold as 'old rubbish' to the sound of a wooden hammer, to be torn in pieces by eager labourers, who totter on falling rafters, and risk their lives that not a moment of the precious time shall be lost, and to be carted off in a hundred waggons, leaving not a trace behind.

It seems that we are to be allowed no rest from railway engineering operations, until the great idea of a central station in the City of London is made to take material shape. Every railway, at present condemned to have its terminus in the outskirts, is looking wistfully towards that coveted spot within the shadow of St Paul's, and making signs to its brethren to join hands and help in drawing the circle together. The Eastern Counties Railway is not content to remain at Shoreditch; the Great Western is dissatisfied with Paddington; the North Western and the Great Northern are not happy at Euston Square and King's Cross; the Brighton Railway is discontented with Southwark, although it has stretched out in a roundabout direction, and has succeeded in crossing the river at Battersea, and in reaching Pimlico; the South Eastern has already taken steps to push on to Hungerford Market by the way of the Suspension Bridge, where it expects to be joined by the South Western Railway, which is fretting down in the hollow of the Waterloo Road; and the Greenwich, Chatham, Southend, and other lines, are all directing their eyes to one common centre. Where this centre will be, yet remains to be seen. At one time public report, as well as engineering projectors, pointed very decidedly to the open space in Farringdon Street, where formerly stood the famous Fleet Prison. That area seems now to be given up, and every eye is turned to Finsbury Circus. This neighbourhood of Greek merchants, institutions, and chapels (if Parliament and railway shareholders prove willing) may become the home of the great central railway station. The project involves connecting lines of railway above and below ground, the appropriation of many existing streets and alleys, and the construction of new thoroughfares. Many people will shake their heads when they hear of this plan; but, while they doubt, the necessary powers and the more necessary capital will probably be obtained, and the work will be begun in as earnest a spirit as that of the 'Underground

Railway.' It is not many months since the public shook its head and laughed at the idea of a railroad among the sewers. The omnibus and cab interests, as represented by their drivers, were particularly facetious on the subject, forgetting what their predecessors, the stage-coachmen, had predicted of railroads in general, and how signally those predictions had failed.

Much nonsense has been talked about the Metropolitan Underground Railway, since it began its engineering operations under Mr Jay and the other contractors; and it is widely supposed that its sole 'mission' is to relieve the overcharged road traffic of the City. General observers peep through the long walls of thin boards which inclose its labourers, its shafts, and its engines, and, as they see men descending and ascending to and from the bowels of the earth, they conclude that some wonderful subway is being constructed that will drain off the meat 'blocks' of Newgate Street, the carriage 'blocks' of Ludgate Hill, and transform London Bridge from a bridge of curses into an agreeable lounge. All this, and more, the Metropolitan Railway may do, through combinations, extensions, and improvements; but, at present, it is merely to be a connecting link between the Great Western, North Western, and Great Northern Railways, which, when constructed and opened about the middle of 1862, will begin at Paddington, and end at Finsbury Circus.

The important centre of the Metropolitan Railway Works is at King's Cross, coming within Mr Jay's contract, which extends from the proposed terminus in Clerkenwell to Euston Square. It is there that the chief and only combined junction on this line is made, out of the City, and it is there that the chief engineering difficulties of the work have arisen.

The main tunnel, running from one terminus to the other, will contain a double line of rails, and it will be twenty-eight feet and a half high, and sixteen feet and a half broad. The branch tunnels will contain a single line of rails, and be thirteen feet eight inches broad, and fifteen feet high. One of these branch tunnels is now completed,* and it runs up Maiden Lane for about a quarter of a mile, and enters the Great Northern line above the station.

The underground plan at King's Cross, if drawn on paper, would be very much in the form of the letter X standing on a horizontal line. The horizontal line is the main railroad from King's Cross to

* January, 1861.

Paddington, which becomes curved at the junction, and winds towards the City by way of Bagnigge Wells, the House of Correction, and the upper part of New Farringdon Street. The cross, or letter X, goes up from left to right, into the Maiden Lane branch, from the New Road, and comes down from left to right, from the Great Northern Hotel in Old St Pancras Lane, on to the main line. The lower triangle, formed by the roots of the two oblique lines where they join the horizontal or main line, is filled up with a condemned-cell looking structure, having arched loopholes, in which will be placed the 'pointsmen' of the railway, so as to command a view in every direction.

The process of tunnelling under the London Streets is very different from a like process in the open country. The material to be penetrated may not be always so hard and unyielding as the rock formations, but it is so full of delicate channels which must not be rudely disturbed, that the labour is rendered twenty-fold more difficult and more expensive. The bed of a London thoroughfare may be compared to the human body—for it is full of veins and arteries which it is death to cut. There are the water-mains, with their connecting pipes; the main or branch sewers, with their connecting drains; the gas-mains, with their connecting pipes, which we have just described; and very often the tubes containing long lines of telegraph wire. If the gravel and clay be opened at any time a few yards under our feet, we catch a glimpse of these tubular channels, lying nearly as close together as the pipes of a church organ. The engineers of the Metropolitan Railway, as we have before said, have had to remove all these old channels to the sides of the roadway, steering their tunnel in between, with the delicacy of a surgical operation. At King's Cross a greater difficulty presented itself in the shape of the old Fleet Ditch. This black Styx of London will often rise six feet in an hour in stormy weather, and its force is particularly felt at King's Cross, which lies at the bottom of the Highgate slope. It was found necessary to divert the course of this unruly stream, and to lock up that portion of its current which flowed through the line the railway was compelled to take. This was done under the personal direction of the able superintendent of the works, Mr Houselander; but not without many men being kept up nearly a fortnight in wet and mud, night and day, until at last their sewer-boots had to be cut off their legs. The slightest mistake would have flooded the works, and would have cost Mr Jay, the contractor, some thirty thousand pounds. The black

river is now safely caged, and a large boiler-looking tube, running across the roof at one part of the railway tunnel, carries the Fleet Ditch over the heads of the workmen—and will carry it over the heads of the passengers, as the King's Scholars' Pond Sewer is carried at the Marylebone part of the works.

The inhabitants on each side of the New Road have often travelled upon railways, and have doubtless often wondered how a tunnel was made, and what sort of men they were who made it. An opportunity is now afforded them of learning much upon this subject, without leaving the warm shelter of their drawing-rooms or bed-rooms. A few wooden houses on wheels first made their appearance in the road, and squat, like Punch and Judy shows, at the side of the gutter. A few waggons next arrive, well loaded with timber and planks, and accompanied by a number of gravel-coloured men with pickaxes and shovels. In a day and a night, or little more, a few hundred yards of roadway are inclosed, and a strange quiet reigns for a time, in consequence of the carriage traffic being diverted. The omnibuses that used to form an endless rumbling procession before the windows, are turned down small back streets and winding alleys, while the outside passengers are sometimes nearly rubbed against the houses, or have to stoop to avoid barbers' poles and other trading projections. The calm of the main thoroughfare is soon disturbed by the arrival of steam-engines, horses, carpenters, and troops of 'navvies,' within the inclosure. The sound of pickaxes, spades, and hammers, the puffing of steam, and the murmur of voices, begin: never to cease for some months, day or night. Huge timber structures spring up at intervals along the centre of the road, where the spots for opening shaft-holes are marked out, and it is not many hours before iron buckets and chains are at work, dragging up the heart of the roadway. This rubbish is carted off on a tramway as quickly as possible, and tilted down a gaping pit, with a noise like distant thunder, to be carried away into the country along the underground branch railway already completed. Notwithstanding this labour and arrangement, the gravel scatters itself among the houses overlooking the works; the mistresses complain of living in a perpetual 'mess,' the servants declare their inability to keep door-steps and passages clean in the face of such an earthquake; the front gardens are often trespassed upon, and huge pieces of timber are planted against some of the houses to prevent their falling forward into the street. A father of a family looks out of his window one morning after shaving, and finds a large breezy

'clearance' among his neighbours' houses to the right or left, which ventilates the neighbourhood, but fills his mind with doubts about the stability of his dwelling. A wet week comes, and the gravel in his front garden turns to clay; the tradespeople tread it backwards and forwards to and from the street door; he can hardly get out to business, or home to supper, without slipping; and he strongly objects to a temporary way of wet planks, erected for his use, and the use of the passers-by, over a yawning cavern underneath the pavement. Sometimes irritated by seeing his railings broken, and by what he thinks an unwarrantable encroachment upon his liberties as an Englishman, he dreams of Chancery injunctions, and instructs his solicitor to serve all kinds of 'notices' on the contractor.

If a wet week, or a wet month, tries the temper of a neighbourhood suffering under the infliction of railway works in the middle of the thoroughfares, it also tries the temper of the contractor. Four or five hundred men have to be paid every Saturday night, although the weather has kept them idle all the week, and the capital invested in plant and machinery is 'eating its head off.' This latter represents no mean sum, when we have to calculate the value of tunnel supports and scaffoldings at from five to fifteen pounds a yard. The very stuff that we call 'dry rubbish,' which is thrown on the roadway of a tunnel when it is finished, cannot be bought under six shillings a yard. Luckily, a large contractor has generally too much work on his hands, in different places, to allow him to be idle or melancholy.

This first Metropolitan, or Underground, Railway is now two-thirds completed. From three to four hundred millions sterling of property, invested in English railways, is constantly pressing for an universal junction throughout the country, and also in London, the heart of the system. An underground railroad, if Parliament be willing, will soon join the Brighton line at Pimlico to Bayswater and the Great Western Railway, by a channel under Kensington Gardens. The Charing Cross branch of the South-Eastern will push on from Hungerford Market to the New Road; thereby attaching itself, through the Underground Railway, with the three great main lines on that side—the Great Northern, North-Western, and Great Western. The Regent's Canal bank will be turned into a railway, and the Great Northern, at King's Cross, will be thus connected with the Eastern Counties' lines. When this is done, the junction of all the metropolitan lines will be effected; and minor branches, such as

the one proposed from Smithfield to the Regent's Circus, will merely help to feed the general centralization at Finsbury Circus. These works, like all alterations and repairs, will give employment to many, and be a nuisance to others, as long as they are being constructed; but when the mess is cleared up, and the new channels are thrown open, a sense of comfort and relief will be felt throughout the vast general traffic of London.

THE UNDERGROUND RAILWAY.

TIME and money have at length done their appointed work, and the Underground Railway is now opened for traffic. It is no longer a mysterious cavern peeped into by children, gaped into by full-grown idlers, gossiped about in tap-rooms and parlours with more or less incredulity, and watched over lovingly by graphic and statistical reporters. It is no longer a withering nuisance to blighted shopkeepers, and a source of perpetual alarm and vexation to quiet housekeepers. Its course has been often marked by local earthquakes, and its capital has been called in to heal those gaping wounds of property. It has threatened utter destruction to workhouses and mansions; and it has itself been threatened with utter destruction by an unruly sewer. It has been nearly ten years before the public upon paper, and three years round them and under them on clay and gravel. As much nonsense has been talked by friends about its 'mission,' and as many doubts have been expressed by enemies about its powers, as if it had been the first railway ever planned and constructed. The fine old ignorant love of wonders, and the fine old conservative hatred of novelties, have both found abundant food in the Underground Railway.

The origin of the enterprise, if clearly traced, will show what the new railway was really designed to be and to do. To a certain extent it is the last desperate throw of a board of directors who manage the finest and the least profitable main line in the kingdom. The Great Western Railway, originally planned by a man who was a dangerous compound of the showman and the engineer, has been sinking com-

mercially, year by year, though it is still one of the most striking sights of the country. Its expenditure has been a broad gauge expenditure. Its rails and carriages, if we except the second class, are all on a grand scale, and it has the proud distinction of standing almost alone amongst its fellows. Its gauge is not the gauge of other lines, and, therefore, when it visits its neighbours, the costly preparation of an extra rail has to be made for its reception. An ordinary commercial engineer would have built it in harmony with the general railway system; but the late Mr Brunel was far above all such vulgar considerations. His father constructed the Thames Tunnel—and he constructed the 'Great Eastern.' It was a family failing not to care for shareholders, and to show a lordly contempt for dividends. The Great Western Railway is only suffering the usual penalties of a Brunel enterprise, and its chance of fruitfulness has probably not been increased by its many extensions. Most of these extensions, however, were forced upon it by railway competition, and we are not inclined to blame it for struggling with its opponents. When it can fairly earn three or four per cent. annual net profit, we shall think it has done its duty. The public ought not to pay more for the use of railway capital, and the shareholders ought not to expect more. Railway investments being quite as secure as the national funds, ought not to produce higher gains than the natural rate of profit.

The managers of the Great Western, in their competition with two or three other main lines, thought it wise to draw nearer to the heart of London. Instead of waiting for goods and passengers to flow to Paddington, they determined to push out and meet their customers on the road. They were helped in this scheme by powerful and interested allies. The Corporation of the City of London, in its zeal for exterminating rookeries, had become the possessors of a vast unprofitable desert. New Victoria Street, Clerkenwell, which was hailed as a great city reformation nearly ten years ago, was suddenly checked in its progress. Like all incomplete things it gradually fell into decay, and was found out to be rather overrated as a metropolitan improvement. It had destroyed many disreputable lodgings without destroying the lodgers; it had caused a low neighbourhood to be more crowded by creating a rise in rents; it had provided a muddy playground for troops of poor little ragamuffins, and had opened up rather depressing views of Field Lane and Frying-pan Alley. Its black slimy arches were sometimes used as a tomb for murdered

infants, and always as a school for teaching pitch and toss, and the rudiments of 'the noble art of self-defence.' Some of these things might have been tolerated if the thoroughfare had encouraged building speculators, but neither warehouses, shops, nor model dwellings rose on either side of its footway. Under these circumstances the Metropolitan Railway was welcomed as a deliverer; and doubtless in the hope of encouraging the erection of a great goods station, and reaping plentiful harvests of created ground-rents, the Corporation went into partnership with the promoters of the Great Western extension. Out of the million and a quarter sterling sunk in the Underground Railway, the City, we believe, finds two hundred thousand pounds, the rest being supplied by the shareholders of the Great Western and the Great Northern Railways, assisted by the general public.

The fact that the City has taken a large interest in this railway seems to have led a great number of writers to predict the immediate relief of the City traffic. The Common Council is certainly goaded into unusual activity at the present moment by the difficulty caused by the crowds of passengers and vehicles in the City thoroughfares; but there is no more real connection between the City railway investment, and the desire lately shown by the Common Council to take the whole business of the City into custody, than there was between the Goodwin Sands and old Tenterden steeple. One is a commercial sprat thrown out to catch a salmon; the other is a wild aspiration of embarrassed Authority, which will struggle to gain its ends by a new police bill.

The ability of the Underground Railway to relieve the City traffic has been ridiculously overrated. The line starts from the Great Western at Paddington, and reaches King's Cross in a direct line, under the New Road—a thoroughfare always able to accommodate at least ten times the vehicles ever seen upon its surface. From King's Cross it goes close to the foot of Holborn Hill, along the bed of the Fleet valley, and casts out all its goods and passengers to struggle up Snow Hill, and increase the agony of the traffic in the narrow gorge of Newgate Street. What it may do in the future we will not discuss. We are only examining it as it now exists; and can see in it a feeder, but no reliever of the traffic. Its influence may be very slightly felt at Holborn Bars—a point next in importance to London Bridge as a feeder of the City traffic: but Cheapside will not have cause to thank it for one truck the less, or for the absence of one

jostled and impatient passenger. There are at least a dozen more crowded thoroughfares in the City, where it can never have any effect either in reducing or increasing the traffic, and it ought not to be puffed into popularity for purely imaginary powers.

Of its prospects as a commercial speculation we are fortunately not called upon to speak, as we cannot bring ourselves to look upon it as a free and independent undertaking. We are told that the cost of its construction, which amounts to something like £350,000 a mile, is very moderate compared with the cost of viaducts through cities. We are very glad to hear it. As a dozen similar projects are before Parliament for the east, west, south, and north of London, we presume that shareholders can be found who are satisfied with these investments. Our estimate of just railway profits is not a very high one, and probably the gains of the Underground Railway will reach that modest estimate. In any case, however, the undertaking, after having been a nuisance for two or three years, may now be fairly praised as a great public convenience. No regard need be paid to the trifling difficulties which have sprung up during the first few days of working. The rumoured choke-damp, the fainting porter, the rawness of the arrangements, the engines with defective smoke-consuming apparatus, and half a dozen other drawbacks, will be remedied as quickly as they are recorded. No railway was ever opened for business in a perfect condition; and when we hear that the Underground Railway was inspected for nearly three months by the officers of the Board of Trade, we are surprised that so few faults can be found in its working. The travelling on the line, on the second day of its opening, was rapid and comfortable. The carriages are broad, and well-lighted with gas; the first-class carriages contain five seats on each side. The lowest fare is threepence for travelling from one end of the line to the other, and the highest is sixpence. Starting from Farringdon Street, King's Cross is reached in three minutes; Gower Street, the next station, is reached in about the same time; and so on to the Portland Road, the Edgware Road, and the terminus at Bishop's Road. The stations, though lighted with a sickly reflection from porcelain tiles, seem well-built, and supplied with every accommodation. The time consumed in the journeys is about one-half of the time taken by omnibuses: and although the fares of these latter vehicles have been very generally reduced, the railway still has the advantage in point of cheapness. Without praising it for engineering points, which are beyond our area of discussion, or joining the cry which

hails it as the one traffic reformer of the age, we may congratulate its proprietors on its safe completion, and the public on the possession of another railway.*

THE CITY OF UNLIMITED PAPER.

WITHIN a certain circle, of which Bow Church is the centre, lie the ruins of a great paper city. Its rulers—solid and substantial a sthey appear to the eye—are made of paper. They ride in paper carriages; they marry paper wives, and unto them are born paper children; their food is paper, their thoughts are paper, and all they touch is transformed to paper. They buy paper, and they sell paper; they borrow paper, and they lend paper—a paper that shrinks and withers in the grasp like the leaves of the sensitive plant; and the stately-looking palaces in which they live and trade are built of paper—small oblong pieces of paper, which, like the cardboard houses of our childhood, fall with a single breath. That breath has overtaken them, and they lie in the dust. Let me collect the scattered pieces, and build them up into such another variety of trembling structures as they formed before; as they form now; or as, in a few years, they will undoubtedly form again.

Our first paper-house is the firm of Collaps, Vortex, Docket, and Company, general merchants. It is quiet and unobtrusive in appearance, being in Tobacco Lane, Fenchurch Street; and its small office has not had its windows cleaned for thirty years, which gives it a favourable appearance of solidity. The leading peculiarity of this firm is ramification; and it is remarkable for the harmony and beauty of its complex machinery. The senior partner, Mr Collaps, is a merchant of the old school. There is a fund of credit in his shoe-buckles, and in the heavy yellow family coach that comes to fetch him of an afternoon. Mr Vortex affects an almost Quakerish severity of attire; he attends to the discounting department, and the chairmanships and

* Since this was written, the Corporation of the City of London have sold their shares in the line.

directorships of those important and choice public companies which he finds so useful in consolidating the credit of the house. Mr Docket is a copy of Mr Vortex, some fifteen years younger; he attends to the working part of the business, whatever that may be; superintends the clerks, answers troublesome inquiries, and is supposed to buy and sell all the merchandise. The ramifications of the house extend to most cities of importance in England, abroad, and the colonies. In Glasgow there is the branch firm of M'Vortex and Company, who have established friendly relations with all the leading banks, and whose paper, drawn upon the substantial firm of O'Docket and Company of Dublin, is 'done' without a whisper, at the minimum rate. The substantial firm of O'Docket and Company of Dublin enjoys the highest credit that can be obtained by a long course of regular trading in the land of generous sympathies and impulsive genius; and their paper, upon the highly respectable firm of M'Vortex and Company, of Glasgow, is much in demand, at very low rates of discount indeed. Then there is Alphonse Collaps and Company of Paris; the great house of Collaps Brothers, at Calcutta; Vortex, Collaps, and Docket, of San Francisco; Docket Brothers and Collaps, of New York; Collaps, Collaps, and Company, of the Cape of Good Hope; Vortex, Docket, and Vortex, of Melbourne, Australia; and Vortex Brothers and Docket, of Montreal, Canada. These all draw and feed upon each other as their necessities require; and the parent firm of Collaps, Vortex, Docket, and Company, of Tobacco Lane, London, watches over its obedient children with a more than fatherly interest, and trades upon their acceptances to the extent of millions. Formerly the great London house used to stop payment during every commercial panic,—their credit preventing the necessity of their doing so at any other time. Now, they have grown too wise and important to do that. It is not that their trade has become in any degree sounder or more legitimate, but the accumulated liabilities of many years have swelled their transactions into such gigantic proportions, that the mere whisper of any difficulty to the Governor and Company of the Bank of England causes a representation to be made to our paternal government, whose mission it is to foster, protect, and accommodate trade; and it is agreed that such a public calamity as the suspension of Messrs Collaps, Vortex, Docket, and Company must be prevented at any cost. It is prevented by the suspension of the Bank Charter Act instead; an extra issue of Bank of England notes is authorized, with a government guarantee in case there should not be

gold to exchange for them; and commerce—ill-used commerce—breathes again.

My next house is the firm of Messrs Ignes, Fatui, and Company, the extensive and eccentric shippers, of Skye Chambers, Old Broad Street, who are always on the search for new markets, and who have very peculiar notions of the requirements of distant countries. They are constantly sending large cargoes of damask tablecloths and silver toothpicks to the Sandwich Islands; or-molu clocks to Tierra del Fuego; and pianos, articles of vertu, and Birmingham idols to the southern coast of Africa. They import, in return, for the London market, tomahawks, heathen gods and goddesses carved out of stumps of trees, with occasionally a Holy Family, painted by some intelligent native Raffaele of Mozambique, in which the mother and child, with very thick lips and sable skins, are evidently doing well. Messrs Ignes, Fatui, and Company are not so particular as they might be about the nature of their shipments, because they find great facilities in obtaining loans upon paper, called bills of lading—a system of pawning ships' cargoes—and if the goods should be returned unsaleable a year hence, injured by time, sea-water, and with the accumulated charges of freight and interest upon their backs, what matter? The loan has supplied funds to send out other and equally well-assorted cargoes; so that, as fast as one payment falls due another loan is obtained, and the whole system is kept up like the brass balls which the juggler tosses in the air. Whenever a vessel is lost without being properly insured; whenever an Australian mail brings intelligence that heaps of costly rubbish are rotting on the wet, glutted wharves of Melbourne, we may guess in a moment that both the vessel and the goods are the property of Messrs Ignes, Fatui, and Company, and look for a suspension of the firm that will set all things right, and furnish gossip for the Money Market for about four-and-twenty hours.

Another well-known paper-house is the house of Strawboy and Rag, the Manchester warehousemen, of Fustian Lane, Wood Street. Strawboy had been a buyer in a large City establishment, where he learned to regard returns as of more importance than either the quality of the business done, or the profits derived from it. Strawboy therefore went in for large returns. Rag had been chief-clerk in the same establishment; and finding, after deeply studying the theory of trade, that the accommodation-bill entered so largely into every transaction, he had come at last to regard it—like some eminent

financiers do the inconvertible bank-note—as the basis of all wealth, and had started the extensive business of Strawboy and Rag, with nothing but his own ingenuity, Strawboy's broad chest, double-breasted waistcoat, and reputed energy, and a pile of bill-stamps of all denominations. Mr Rag's calculations were based upon a knowledge of how many small traders in the outskirts of London, in London itself, and throughout the country, were maintaining a position that was not required by the existing demands of trade, or that they were not qualified to fill, either by ability or capital. It was with these small over-traders that Messrs Strawboy and Rag opened negotiations, and, in consideration of reviving their languishing credit, founded about one hundred and twenty drawing-posts or bill-stations, with power to manufacture bills upon them to an unlimited extent. The demands of such a business of course consumed whole mountains of goods, and the manufacturers were delighted; the discounts of such a business of course required whole mines of money, and the bankers were delighted. Strawboy—who always affected a rough, hearty character—used to refer with pride at public dinners to the excessive lowness of his origin. He worked in a brick-field when a boy, for twopence a-day, and he dated his prosperity from the time when he became an errand-boy and drudge in a City warehouse at half-a-crown a week. Mr Rag was more reserved—the gentleman of the firm—and he put his views upon the currency in the shape of a pamphlet, called *Is Money to be the Master or the Slave of the People?* It is a pity that such a promising state of things was not destined to endure. The crash came at last; and, although they very nearly persuaded the National Bank to render them assistance, Messrs Strawboy and Rag were obliged to submit to the fall.

The next house that rises before me is that of Messrs Bibb and Tucker, of Consol Court, Threadneedle Street. It is not easy to say what the exact business of Messrs Bibb and Tucker is. I have known and watched them for many years, and I profess myself totally unable to form an opinion, unless I decide that they are merchants who exist for the purpose of failing every three years, under circumstances that command the general sympathy of their creditors. Bibb is a man who gives you the impression of being a remarkably simple and straightforward man; in fact, so general is this impression, that he is known in the money market as 'honest George Bibb.' Tucker is a man who, according to his own account, if his inclinations had been consulted, would rather have been in the church; but as his father

desired to see him enrolled in the ranks of commerce, he obeyed his father, and took his place amongst the merchants of the City, where he hopes he always endeavours to do his duty.

When the periodical failures of Bibb and Tucker take place, there is generally, for such apparently quiet people, a rather large amount of debts, and a very large amount of liabilities; but although a considerable quantity of property is always unaccountably sucked up, the dividend proposed never falls below twelve shillings and sixpence in the pound; and, as their transactions are always rigidly confined to creditors who belong to the old-fashioned class of merchants, who look upon a man's word as his bond—and a very good bond, too—there is never any scrutiny demanded, or any troublesome questions asked, and the very respectable dividend always carries them through triumphantly, with the presentation of a piece of plate. Once—and once only—they broke the uniformity of their composition by paying eleven shillings in the pound; but they restored the balance the next time by increasing the dividend to fourteen shillings.

The next house is the well-known manufacturing house of Lacker, Crane, and Company, of Packingcase Yard, Lower Thames Street, and Dunmist Mills, near old Humdrum, Inverness-shire. The premises in Packingcase Yard are modest enough, and would not seem to indicate a business of a very extensive character; but, in this instance, the art of the engraver is called in, and we are presented upon invoices and bill-stamps with a flattering and highly suggestive view of the important and busy Dunmist Mills of which the small office in London is only one of the numerous agencies. There are water-power and steam-power; high chimneys sending forth volumes of smoke; long ranges of out-buildings with groups of busy work-people, and large, solid bales of merchandise; bridges and tramways, and waggons loaded with raw material, drawn by struggling horses of the Flemish breed, towards the crowded gates of this industrious settlement. The whole is a work of imagination of the highest order, alike creditable to the designer and the engraver. When, in the usual course of things, the house of Lacker, Crane, and Company is compelled to call its creditors together, and an inspection of the magnificent factory, outworks, and plant takes place by the order of the assignees, the dissolving view of the industrial hive, with its active work-people and its din and clatter of machinery, gradually recedes, and in its place stands the pastoral simplicity of a couple of barns, and a kilted shepherd tending his flocks.

My next paper-house is that of Baggs and Company, of Nabob Buildings, Leadenhall Street, in the East India trade. Baggs and Company would have been commercially defunct many years since, but for a most fortunate occurrence—they were joined at their last gasp by young Mr Curry, the only son of the great East Indian director of that name. The firm of Curry, Baggs, and Company was a very different concern from the languishing firm of Baggs and Company. Its credit was good to any amount; for many persons confounded the name of Curry with old Curry, and they did not stay to undeceive themselves. Others spoke about the great wealth of old Curry—wealth that he *must* have; spoke about young Curry being the only son and a great favourite—a very great favourite; spoke about the praiseworthy care of a father desirous of seeing his son comfortably settled in commerce before he finally retired from the busy scene. Old Baggs made hay while the sun shone. One morning old Curry committed suicide. Upon inquiry it was found that he was not only very much behind the world, but that he had a large number of forged bills in the hands of Helter, Spelter, and Company, who rather prefer that exceptional branch of the trade in paper, because they have found, from a long experience, that forged documents, as a rule, while they yield the highest rate of interest, furnish the greatest amount of security. Young Curry, instead of taking any capital into the tottering firm, had, on the contrary, drawn a few thousands out of it as a premium for the use of his valuable financial name.

My next structure is the old historical banking-house of Fossil, Ingot, and Bagstock, in Bullion Alley. It was founded in the time of Charles II. Take up any book upon the Antiquities of London, and you will always find a chapter devoted to the house in which the business is carried on. Take up any collection of commercial anecdotes, and you will find how, in periods of financial panic, the great house of Fossil alone stood unshaken. You will read how the stout-hearted, cool-headed Fossil, when his bank was subjected to a severe pressure, during the reaction of the South Sea scheme, stood at his door and shovelled the guineas into baskets out of a dust-cart. You will read how he went to a neighbouring banker, who was in sore distress, and, slapping him on the back, said, 'Centum, my boy, I have placed a couple of millions to your credit, and if you want any more, you know where to send for it.' When it was announced, the other day, that Fossil, Ingot, and Bagstock had closed their doors,

the public could not credit it. Although the fact was too plain to be denied, they fell back upon the assertion that the suspension could only be temporary, as old Fossil's property alone would pay everybody, and yield an enormous surplus. This flattering supposition had also to be given up; for, to the general consternation, it was found, upon inquiry, that old Fossil—in fact, all the Fossils—had been dead sixty-five years, and that there had been none of their capital in the bank for more than half a century.

Unlike his predecessors, who were all striving to make something out of nothing, John Taster was equally energetic in trying to make nothing out of something. By a long course of industry and care in the wholesale cheese trade, John had amassed a fortune of about one hundred thousand pounds. His life, dull and monotonous enough, had been passed in that very mouldy warehouse on the ground-floor of one of the dampest houses in Lower Thames Street, posting a greasy ledger in a small box, called a counting-house, which was lighted with gas the whole of the livelong day. There was not much about John which indicated a poetic temperament; he was fat and florid, and his voice was thick, coming through the nose. Yet was he, perhaps, one of the most imaginative men that ever breathed. His imagination was active, not passive; it did not take the form of dreams; it developed itself in a practical business way. John Taster threw himself and his capital into the Garden of Eden Railway Company (Limited). Some people say he originated the scheme; but this I cannot believe: one thing, however, is certain, the Company professed to be limited, and it was limited, I am sorry to say, to John, and John's capital. The mind that for so many years had been devoted to the uncongenial, but profitable, pursuit of selecting and selling cheese, was now feeding upon honey-dew, and drinking the milk of Paradise. He gave up the business in Lower Thames Street, and fixed his eyes with the intensity and steadiness of an Indian fakir upon the East. His fortune was lost; but his faith was firm, and, as he cannot now feed his darling scheme with gold, he has become, like the rest, a man of paper.

My next house is compounded of the Etna and Vesuvius Joint Stock Bank, Filch Lane, London, and the great builders and contractors, Messrs Chaos, Rotbill, and Clay, of Bankside. Mr M'Vacuum, who was installed as sole manager of the Etna and Vesuvius Bank, with an enormous salary, is one of those extraordinary men which the City creates; men of wide experience, large grasp of intel-

lect, and great decision of character. As a proof of his great influence in the City, and the respect which was paid to him by the commercial community, before the doors had been opened for business two months, the Bank numbered amongst its clients the names of Messrs Collaps, Vortex, and Docket; Ignes, Fatui, and Company; Strawboy and Rag; Bibb and Tucker; Lacker, Crane, and Company; Curry and Baggs—and, greater even still, the leviathan house of Chaos, Rotbill, and Clay. M'Vacuum, being a man of a discerning mind, soon discovered the peculiar ability of the latter firm, and the result was an arrangement by which, in consideration of M'Vacuum granting the use of the Bank for unlimited facilities, Messrs Chaos, Rotbill, and Clay were to begin the well-known building settlement of New Babylonia, granting M'Vacuum a secret share in the profits. Suddenly the great marsh of East Babel sprang into life. Suddenly upon the dismal swamp arose the plan of New Babylonia. Suddenly shoals of bills of exchange appeared in the Money Market—and especially in the accounts of the Etna and Vesuvius Bank—drawn upon hodmen, carpenters, bricklayers, carters, and labourers, whose names became as familiar to capitalists as those of Messrs Fossil, Ingot, and Bagstock themselves. Suddenly came the general crash, and paralyzed enterprise left New Babylonia—the hideous night-mare—the paper monster—which it remains at the present time. There are the long streets of carcases, with awful gulfs and pitfalls of cellars; there is the outline of a grand square filled with heaps of gravel, rubbish, old broken bricks, pieces of iron, and slabs of paving-stone half hidden in the yielding clay; there are large rafters of timber, round which the long damp grass has grown; and there is a deep pool of rain-water, in which float rotten planks that venturesome urchins have formed into a raft; there is the fragment of a church, and a frontage that might have been intended for a chapel or a literary institution; there are large ghastly shells of mansions, some with broken, weather-beaten stucco fronts, some with ruined porticoes half completed, some with cloud-capped garret window holes, staring far away across the misty country; and there are frameworks of shops through which the distant fields are seen as in a picture. It is the home of the rag-picker and the tramp; silent and awful as a city of the dead; silent as the grave of sunken capital should be; silent and undisturbed as when, in the middle of a summer's day, three thousand workmen streamed slowly from the place, never to return.

WANTED, A COURT GUIDE.

OF all the many divinities that hedge a king there are none so numerous, or whose power is so fixed and immutable, as the members of the royal household. Within the somewhat homely and rather circumscribed limits of a modern English palace, it is difficult to imagine where standing room can be found for the swarming members of this idle and ornamental army. Taking the area of their sphere of action, and comparing it with their numbers and their average bulk, it is not difficult to demonstrate to the meanest mathematical capacity, that they must huddle together in the palatial ante-rooms, and ride upon each other's backs up the palatial staircases.

It is difficult to solve the problem of their physical accommodation, far more difficult to ascertain the exact nature, amount, and value of their individual functions, and to reconcile those functions, when discovered, with our notions of comfort, and our rules of prudence and common-sense. When we hold forth, in our superior civilized wisdom and benevolent platform pity, upon the lamentable social condition of the wretched natives of India, we are accustomed to place our discerning fingers upon the absurd doctrine of caste as the one cause that lies at the bottom of their abasement—the one stumbling-block and barrier in the way of improvement. But, what shall we say when we examine the interior of the first house in our kingdom, the residence of our gracious monarch, and find it given up to the possession of a crowd of titled menials, who have encrusted royalty with an empty, useless, expensive, and distasteful state, and whose allotted duties are as slight and divided as those of the benighted servants of an Asiatic mansion?

It must be a pleasant thing for the sovereign of the realm to see about one thousand, unselected, vested interest, hungry, hereditary bondsmen, dancing round the Crown, like Red Indians round a stake, and scrambling for three hundred and twenty-five thousand of the three hundred and eighty-five thousand pounds that is thrown to them every year by a liberal and uninquiring country. Far be it

from us, as worthy members of the greatest nation under the sun—as members of a gentle nation that never took a poor man's bed to satisfy an unpaid tax—far be it from us to say, that the royal claims are too exacting even to the extent of the odd five pounds per annum. If we are considerately silent on the amount of the grant, we may, perhaps, be allowed to criticize the manner of its disposal.

We can imagine a young, amiable, sensitive, and newly-created monarch—a monarch simple in tastes, who had spent much of his time in the comparative solitude of yacht sailing—coming unexpectedly to a throne in consequence of some uncalculated vagaries of death, and being set down suddenly and unprepared in the midst of this eddying whirlpool of frothy state. We can imagine his bewilderment at the crowd in the first department—that of the Lord Steward—consisting of the Lord Steward himself, a treasurer, a comptroller of the household, master of the household, secretary of the master, another secretary, three clerks of the household, secretary of the garden-accounts, paymaster of the household, office-keeper, two messengers, and a necessary woman. A clerk of the kitchen, four clerks of the kitchen, one messenger of the kitchen, a necessary woman of the kitchen; a chief cook, four master cooks, sundry apprentices, two yeomen of the kitchen, two assistant cooks, two roasting cooks, four scourers, three kitchen maids, one storekeeper, two green-office men, two steam-apparatus men, first yeoman of the confectionery, second yeoman of the confectionery, an apprentice of the confectionery, three female assistants, an errand-man, a pastry-cook, two female assistants of the pastry-cook, a baker, an assistant baker, three coffee-room women; one yeoman of the ewer, two female assistants of the yeoman of the ewer; the gentlemen of the wine and beer cellars, two yeomen of the intoxicating liquors, a groom of the intoxicating liquors; a principal table decker, a second table decker, a third table decker, an assistant table decker, a wax fitter; three yeomen of the plate-pantry, a groom of the plate-pantry, and six assistants of the plate-pantry. Two principal coal-porters, eleven assistants of the two principal coal-porters. First gentleman-porter, first yeoman-porter, second yeoman-porter, an assistant porter, three grooms, porters, a state serjeant-porter, five yeoman porters, four state under-porters, and ten night-porters. One first lamplighter, a second lamplighter, seven assistant lamplighters; a yeoman of the steward's room, five assistants of the yeoman of the steward's room; an usher of the servants' hall, three assistants of the usher of the servants'

hall. To complete this bewildering list, there is an hereditary grand almoner (honorary), lord high almoner (honorary), yeoman secretary of the almonry, one knight marshal and eight marshalmen, ranger of Windsor Home Park, ranger of Windsor Great Park, and deputy-ranger of Windsor Great Park.

Scarcely recovered from these overwhelming parasites of the Lord Steward's department, we can imagine the bewildered monarch wandering into another household province: that of the Lord Chamberlain. There he is, hustled by the Lord Chamberlain, the Vice-Chamberlain, the comptroller of accounts, and superintendent of the duties of the department of the Lord Chamberlain, a chief clerk, an inspector of accounts, three assistant clerks, an office-porter, three office-messengers, keeper of the privy-purse, secretary to the keeper of the privy-purse. He has next to acknowledge the curtseys of a mistress of the robes, eight ladies of the bedchamber, eight maids of honour, eight bedchamber women, and an extra bedchamber woman; then to endure the obeisances of a groom of the robes, a clerk to the groom of the robes, a messenger to the groom of the robes, and a furrier to the groom of the robes. He is next saluted by eight lords in waiting, eight grooms in waiting to help the lords in waiting, an extra groom in waiting, four gentlemen ushers of the privy-chamber, four gentlemen ushers, several daily waiters, an assistant gentleman usher, four grooms of the privy-chamber, eight gentlemen ushers, quarterly waiters, an extra gentleman usher, ten grooms of the great chamber, thirty-two (honorary) gentlemen of the privy-chamber. A master of the ceremonies, assistant master of the ceremonies, a marshal of the ceremonies, five pages of the back stairs, two state pages, a page of the chambers, six pages of the presence, and three pages' men to wait upon the pages. Then come serjeants-at-arms; he must have a night serjeant-at-arms, a Lord Chancellor's serjeant-at-arms, House of Commons' serjeant-at-arms, three kings of arms, six heralds, four queen's messengers, one Lord Chamberlain's messenger. He is further troubled with three inspectors of palaces, three carpet-men, nine housekeepers, three linen-room women, three necessary women, sixty housemaids, two strangers' attendants, at Windsor Castle. When he goes to chapel he encounters a dean of the Chapel Royal, a sub-dean, a chaplain, a clerk of the queen's closet, three deputy-clerks, resident chaplain in ordinary, a closet-keeper, forty-eight chaplains in ordinary, ten priests in ordinary, four chaplains, three preachers, three readers, sixteen lay gentlemen of the chapels royal, four organists, two com-

posers, a violist, a serjeant of the vestry, a groom of the vestry, a master of the boys, and ten boys to be mastered. He must not be ill without evoking the services of two physicians in ordinary, four physicians extraordinary, one physician to the household, first and second physician-accoucheur, one surgeon-accoucheur, two serjeant-surgeons, one surgeon to the household, three surgeons extraordinary, four apothecaries to the person, two apothecaries to the household, two apothecaries extraordinary, a chemist, a druggist, one dentist to the household, two surgeon-dentists, an aurist, an oculist, and a surgeon-chiropodist. He is bound to be fond of music. Woe to the unhappy monarch if he be not; for he must keep a master of the state band of music, a conductor, twenty-five performers, a serjeant-trumpeter, and nine household trumpeters. He must pay also a poet-laureate, an examiner of plays, a master of the tennis-court, three bargemen and watermen, a keeper of the swans, a keeper of the jewel-house in the Tower, an exhibitor of jewels, a principal librarian, a librarian in ordinary, a painter in ordinary, a surveyor of pictures, captain and gold stick, lieutenant and silver stick, standard-bearer and silver stick, clerk of the cheque, adjutant and silver stick, gentleman harbinger and silver stick, two sub-officers, a secretary to the captain, and forty gentlemen-at-arms; captain of yeomen body-guard, lieutenant, ensign, adjutant and clerk of the cheque, four exempts, assistant adjutant, eight serjeant-majors, two messengers, one hundred yeomen; and Governor and Constable of Windsor Castle.

Having finished the Lord Chamberlain's department, our fatigued and distracted monarch, on going into his stables, finds the Master of the Horse, one principal coachman and twelve others, four footmen, twenty-six grooms, chief equerry and clerk marshal, four equerries in ordinary, an extra equerry, four pages of honour, crown equerry, and secretary to the Master of the Horse, first clerk of the stables, second clerk of the stables, assistant clerk of the stables, inspector of stables, a veterinary surgeon, a yeoman rider, a lady rider, a serjeant footman, fifteen footmen, fifty helpers. A Master of the Buckhounds and Hereditary Grand Falconer cannot be done without.

We can imagine our bewildered monarch, exhausted with the labour of the survey, retiring to a vacant apartment (if such a place could be found), and looking over the list of his host of attendants, attendants' attendants, and servants of attendants' attendants. He finds there, the names of members of the first families in the land,

who carry out the old feudal custom of waiting on the sovereign; and who, as there are no castles to be sacked, and as there is no plunder to be had, are content to receive a common-place remuneration in the form of salary, varying from forty pounds to four thousand pounds per annum, and paid every quarter out of the Civil List portion of the taxes. He looks over that same Civil List, and finds that, although he is its head and centre, he receives for his own disposal less than one-sixth every year, the rest being absorbed before it reaches him by the surrounding circles. Indignantly he rings a bell, and is answered, like Lord Bateman, by a proud young porter, page, equerry, groom, waiter, and K.C.B. The bewildered monarch, considerably awed, asks for a glass of water. Four and twenty bells ring in succession, each one summoning another, until at last the man is reached, whose duty it is to draw the water, after the Asiatic system of caste in full working order, aided by all the advantages of a superior civilization. The water—with some considerable delay—is passed on from hand to hand, until it reaches the expectant and bewildered monarch. He sees the whole organization at a glance—the perfect, unbroken chain of relative flunkeyism: everybody combing everybody else's hair, everybody brushing everybody else's coat, everybody pouring out everybody else's coffee, everybody handing everybody else a shoe-horn, everybody attending everybody else abroad, everybody waiting upon everybody else at dinner, everybody laughing at everybody else's jokes, and sometimes (for quarrels will arise in the very best-regulated palaces), everybody kicking everybody else down-stairs.

Finally, we can imagine our bewildered monarch so much alarmed at the amount of detail that exists for him to master, and at the number and variety of individualisms of different degrees of importance he has to avoid offending and misdirecting, that, in the dusk of evening he seizes a stout pea-jacket, and slips privately out at a back-gate, to take a long and quiet cruise in the Baltic or the Mediterranean.

END OF VOL. II.

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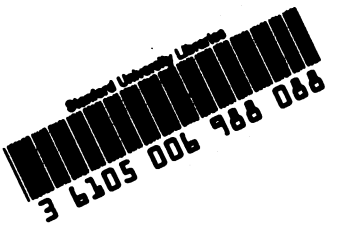

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